

FRIDAY, JUNE 11.

THE MASTER CAR-BUILDERS' ASSOCIATION.

Twentieth Annual Convention.

The twentieth annual Convention of this Association com-menced on Tuesday at Niagara Falls. There was a large attendance of members.

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The Convention was called to order at 10.30 a. m., June 8, and the reading of the minutes having been dispensed with, the roll was called.

The President, Mr. B. K. Verbryck, then delivered an address, and reminded the Convention that it was now 20 years since the first convention of that character met in Springfield, Mass., in May, 1867. A great amount of useful work had been accomplished by the Association, and its importance was recognized by the general managers of the majority of railroads. It was to be hoped that standard forms would be adopted for the parts of freight cars. The subject was fast growing in importance, as the interchange of cars was on the increase.

The Committee on Automatic Freight Brakes had been unable to make a full report on the subject in time for the Convention, but had made arrangements for an exhaustive series of tests which would take place in July.

A trial of automatic freight car couplers had been held in Buffalo in September last, and a report on the subject would be submitted to the Association by the Executive Committee, who had conducted the trials.

The Committee on the Revision of Rules of Interchange will make a report which has been revised by the Executive Committee.*

The Secretary (Mr. M. N. Forney) then read his annual

will make a report which has been revised by the Executive Committee.*

The Secretary (Mr. M. N. Forney) then read his annual report, from which it appeared that the Association now consisted of 140 active members, 79 representative members, and 2 honorary members, making a total membership of 221. The total membership last year was 199. The total number of cars represented was 439,305, against 489,832 represented last year. The figures for last year included, however, new members who joined during the Convention, and the figures for the present year could hardly be taken as the full strength of the Association, as several additional members might be expected during this Convention.

The expenses during the last year had been \$3,799, not including the cost of reprinting the old volumes of proceedings, which was an item not likely to occur again in their annual expenses. The receipts were \$4,300, and after paying for the reprinting of the minutes the balance in hand was about \$100.

As the expenses were likely to be somewhat heavy this

As the expenses were likely to be somewhat heavy this sible, so as to bring the springs near the side frame. The folvear, it might be expedient to increase the annual assessment for representative members to from \$5 to not exceeding \$8 per 1,000 cars. Unless some step of this sort was taken, there might possibly be a deficit at the end of the property of the sort was taken, there might possibly be a deficit at the end of the property of the sort was taken, there might possibly be a deficit at the end of the property to curricular.

taken, there might possibly year.

The report was accepted.

The Secretary then read the following list of committees:
Committee to nominate President for the ensuing year:
Messrs. R. H. Soule, R. Miller, C. A. Smith, W. Forsythe and John Hodge.
Committee to select place of next meeting: Messrs, R. C. Blackall, Clement Hackney and W. B. Snow.
Committee on correspondence and resolutions: Messrs.
Godfrey W. Rhodes and H. A. Webster.
Committee on subjects for discussion and investigation:
Messrs. J. W. Marden, J. W. Cloud and T. A. Bissell.
The following gentlemen were appointed as an Auditing Committee: Messrs. Leander Garey, H. D. Titus and G. W. Demarest.

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The Treasurer's Report had not been yet received, and was therefore not read.

Mr. WALL (Pittsburgh, Cincinnati & St. Louis) moved that the Constitution be altered in accordance with the notice given at the last Convention, giving power to Executive Committee to increase assessment from \$5 to \$8 annual dues.

Carried unanimously.

Mr. WALL then moved that the wording of the article in the Constitution on the appointment of the Committee on subjects for investigation and discussion, and

Mr. WALL explained that the object of his amendment was that the President should be assisted in selecting the members of committees by the Executive Committee. Some journals had misreported this, and considered that it was aimed at curtailing power of President. This was not his intention.

Mr. Garey approved of the object of Mr. Wall's motion, and moved as a further amendment that the Executive Committee shall choose committees in consultation with the President.

Mr. Woop supported the original amendment (Mr Wall's).

lent.

Mr. Wood supported the original amendment (Mr Wall's), which was seconded by Mr. Lentz.

Mr. Adams seconded Mr. Garey's amendment. On a vote being taken 16 were for and 8 against, and therefore Mr. Jarey' amendment to the Constitution was carried.

Mr. J. W. CLOUD pointed out the vote was hardly in accordance with their rules and the vote was neconsidered.

Mr. J. W. CLOUD then moved that the Constitution be amended as proposed last year.

Mr. GAREY moved Mr. Adams' seconded motion that materials be left over till Thursday 10 a.m. This motion was ost.

lost.

Mr. Chamberlain then moved that it be laid on the table till Thursday 10:30 a.m. Carried.

A vote of thanks was then proposed to Mr. F. W. Wilder and the officers of the New York, Lake Erie & Western for use of their tracks, etc., at the car coupler trials, at Buffalo, September, 1885. Carried.

Mr. Wall moved that Revision of Rules of Interchange shall be the special object of consideration Wednesday at 10 a.m. Withdrawn.

Mr. Wald more shall be the special object of consideration which is shall be the special object of consideration with the special object of consideration. Mr. ADAMS moved that in future Rules of Interchange be considered on second day of Convention at 10 a. m., instead of 3 p. m.

of 3 p. m.

Report of Committee on Standard Freight Trucks was then read, and the report was accepted.

REPORT OF COMMITTEE ON A STANDARD FREIGHT-CAR TRUCK.

The preliminary report on this subject containing the rules as suggested by the Committee has been already published in the lings.

In conclusion, we recommend as standard the general plan in conclusion.

At the last meeting general plans were submitted for a diamond truck with channel transoms, arranged to be used with a swing bolster or with a rigid one. The report recommended that a number of trucks be built by the different roads from the plans presented, and that they be put into service for trial. This recommendation was approved by the Association, but the only roads known to us which have built the proposed standard trucks are the Michigan Central Railroad and the Chicago, Burlington & Quincy Railroads. These roads have each sent to Niagara Falls a pair of trucks, and they are now on exhibition at the New York Central depot.

Mr. Mackenzie asked why more play had not been allowed in the spherical centre plate proposed. The boss on the male plate on the trucks truck.

Railroad and the Chicago, Burlington & Quincy Railroads. These roads have each sent to Niagara Falls a pair of trucks, and they are now on exhibition at the New York Central depot.

One of the Michigan Central trucks has a swing bolster, and one a rigid iron bolster. Those sent by the Chicago, Burlington & Quincy Railroad have trussed wooden swing bolsters. Twelve of these trucks have been in service about six months under passenger tenders on the different divisions of the road, and have given good satisfaction. A pair of trucks with rigid bolsters have also been built recently by this company, and are now in a similar service.

The details shown on the drawing, sheet 1, are similar to those on the Chicago, Burlington & Quincy sample trucks. The iron bolster used by the Michigan Central road in their sample truck is shown on sheet 2.

The Master Car-Builders' Journal Box, as modified for Inger bolts, is shown on sheet 3.

The brake gear is shown on sheet 4.

These general plans and details, excepting the centre plate are now recommended as standard.

The object of the Association (as stated in the Constitution) being "to bring about uniformity and interchangeability in the parts of railroad cars," it is rather surprising that no effort has been made heretofore to secure interchangeability active probable that the sample trucks would not fit under any car not built specially for them. Chicago, Burlington & Quincy car, sent with the trucks, had the body side bearings spread 4 in, in order to make them fit those on the truck.

The centre-plates on the Michigan Central trucks are the standard pattern for that road. Those on the Chicago, Burlington & Quincy standard pattern, and they are not interchangeable with those of any other road.

A standard spread and height of side bearings and forms for centre plate bearings have thus incidentally become a part of this report.

In order to ascertain the practice of the different roads in these details we sent out circulars asking the members to recommend a standard spread

1	TWENTY-EIGHT BOADS.		
1	Illinois Central New York, Lake Erie & Western	423% 50	6.6
1	Pennsylvania		6.6
1	Pittsburgh, Fort Wayne & Chicago	50	44
1	Chicago & Atlantic	54	**
1	Boston, New York & Philadelphia	5516	46
4	Atchison, Topeka & Santa Fe	56	4.6
1	Chicago, Burlington & Quincy	5616	4.5
	New York Central & Hudson River	58	16
1	Buffalo, Rochester & Pittsburgh	58	44
J	Wabash	58	44
1	Missouri Pacific	58	64
	New York, Chicago & St. Louis	58	86
	Baltimore & Ohio	58	6.6
	Flint & Pere Marquette	5816	64
	Chicago, Rock Island & Pacific	581/2	64
	Chicago & Eastern Illinois	60	94
	Great Western Despatch: Erie & Pacific Despatch	60	66
	Norfolk & Western	60	6.6
,	Northern Pacific	60	41
•	Hot Springs	60	100
٠	Lehigh Valley	60	45
	Indianapolis Car Co	60	44
	New York, Susquehanna & Western	60	**
ı	Philadelphia & Reading, New Jersey Division	61	46
	Chicago & Alton	62	44
	Lake Shore & Michigan Southern		15
	Boston & Albany	64	**
6			

The drawing, sheet 1, shows the side bearings, five feet between centres. This distance seems to be the nearest to that preferred by the majority of the members reporting, and it is recommended as a standard for both truck and car body. The vertical relation of the centre-plate bearing must also be fixed, in order to secure a fit between the truck and car body. The height of side bearings from bolster are shown on sheet 6.

be fixed, in order to secure a fit between the truck and car body. The height of side bearings from bolster are shown on sheet 6.

The drawings of centre-plates, sent by request of our circular, show as great a diversity of forms and sizes as is usually found when any new investigation is made on the subject of existing practice in freight-car details.

Centre-plates may, however, be divided into three general forms, and they are shown so grouped on sheet 5.

First—Centre plates in which the bearing is a portion of a sphere with an annular boss around the centre-pin. The Erie, Michigan Central, and Lehigh Valley plates are types of this form.

Second—The large centre bearing where the bearing surface is a flat-edged ring of large diameter, sufficient to support the car body horizontally without the aid of side bearings. The Philadelphia & Read in and the Pennsylvania Rail road are types of this form.

Third.—Centre-plates in which the bearing surface is a small ring, either rectangular or semi-circular in cross section. The Boston & Albany and the Chicago, Burlington & Quincy are types of this form.

The form of centre plate preferred by the majority of members reporting, and that which we think is the best, is the first general form, with a bearing of the shape of a portion of a sphere, in other words, a ball joint. Fig. 1, on sheet 5, gives the dimensions of a centre plate of this form which is recommended as standard.

The following drawings accompany this report:

Sheet 1—General plan and details of proposed standard truck.

Sheet 2—Iron truck bolster, made by Michigan Central

et 2-Iron truck bolster, made by Michigan Central Sheet 2—Iron truck tooses, all reads a sheet 3—Master Car-Builders' journal box, modified for larger bolts.

Sheet 4—Brake gear for standard truck.

Sheet 5—Twenty centre-plates, representing present prac-

tice. Sheet 6—Proposed standard centre-plate and side bear-

Mr. Mackenzie asked why more play had not been allowed in the spherical centre plate proposed. The boss on the male plate on the car appeared to nearly fit the recess in the female plate on the truck.

Mr. Forsythe explained that the 14-in. play allowed at centre would amount to as much as the side bearing allowed. Mr. Garry asked if proposed centre plate would not fill in with dust.

Mr. Forsythe explained that the ¼-in. play allowed at centre would amount to as much as the side bearing allowed. Mr. Garey asked if proposed centre plate would not fill in with dust.

Mr. Miller replied that the Chicago, Burlington & Quincy had used a similar centre plate for many years.

A member considered that swing hangers should be spread further, and be as near arch bars as possible.

The President then suggested that discussion be postponed until after they had seen some trucks.

Committee on Safety Appliances for Trainmen had no report. Mr. Forney, as the only member present, explained that owing to the absence of Mr. Hegewisch nothing had been done, but suggested that the Committee be continued for another year.

Carried.

The subject of the report of the Committee on British and Continental Railroad Practice was then brought up, but Mr. Soule explained that being chairman of two committees, Rules for Interchange and the above, he had devoted all his attention to the former subject. It was resolved that the Committee be continued till next Convention.

On the question of Automatic Freight Car Brakes, Mr. Rhodes reported that work was more than anticipated and the Committee held a meeting last October and found that it was impossible to get tests before this Convention. The Committee held and the Committee held a meeting last October and found that it was impossible to get tests before this Convention. The Committee held and the Committee held and the Committee bests, lasting four days, for each competitor. Six competitors had entered. Endurance tests will need assistance of members to make it a success. Every broken part should be saved, and every brake kept in service. The third part of tests will test condition of brakes after service. Committee have to rely on members that cars will be not specially prepared, so that all will be tried under same conditions.

Plans of ground and detailed programme of test will be furnished, and preliminary tests have been made so as to drill crews and to get the men

by the Secretary and accepted.

REPORT OF COMMITTEE ON STANDARD DEAD-BLOCKS.

In making a report on this subject the members of your Committee have thought it would be best first to review the action which the Association has heretofore taken with reference to this important subject.

In 1872, 2 ft. 9 in. was adopted as the standard height for draw-bars of freight cars, measured from the top of rail to the centre of draw-bar. It was not then specified whether this height was to be measured when the car was loaded or empty.

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In 1884, the Executive Committee, in a report on the revision of standards, recommended that "the standard height of draw-bars for freight cars, measured perpendicularly from the tops of the rails to the centre of the draw-bar, is hereby declared to be 2 ft. 9 in. when the car is loaded to its full capacity." This recommendation was discussed at considerable length and the words "when the car is loaded to its full capacity" were stricken out and the words "when the car is empty," were substituted for them, and the standard height of draw-bar which is now recommended by this Association is 2 ft. 9 in. when the car is empty.

In 1882 it was recommended "that when double dead-blocks are made, they be made 8 in. square on the face, and 6 in. thick, and placed 20 in. apart, centre to centre, giving a clear space between them of 12 in., and that those whose preference is for single dead-blocks must make them not less than 28 in. long, 7 in. thick, and 8 in. face." It was recommended "that the height of the dead-blocks from the rail to the bottom of the block be 3 feet."

In 1883 a committee recommended "that when double

dead-blocks from the rail to the bottom of the block be 3 feet."

In 1883 a committee recommended "that when double blocks are used they measure not more than 30 in, from out to out, each block to be 20 in. (?) long and 8 in. wide, and when the single block is used, must not be less than 28 in. long by 7 in, thick and 8 in. face,"

In the discussion which followed, the report was amended and re-amended, until its recommendations were substantially the same as the standard adopted the year before. Mr. Goodwin then moved "that the dimensions for single and double dead-blocks recommended by the Committee in their report, as amended, be referred to the members of the Association for decision by letter-ballot, according to the Constitution." In explanation of the motion, Mr. Goodwin said: "The difference between the report of the Committee and the standard of last year is this: The double dead-block last year was 6 in.; the recommendation of this Committee is that it, should be 8 in., which is a very wise one for the safety of the trainmen."

Mr. FORNEY suggested that Mr. Goodwin should put his resolution in such a way that the question shall be submitted to the Association whether the dead-blocks shall be 8 in, thick instead of 6 or 7.

Mr. Goodwin declined to do that; his resolution was then adopted.

At the same meeting a resolution was adopted "instructing the Executive Committee to revise the resolutions relations the Research of the committee to revise the resolutions relations the Research of the committee to revise the resolutions relations the Research of the Research of the resolution of the Research of the resolution relations the Research of the Research of the resolution of the Research of the Research of the resolution of the Research of the Research of the resolution of the Research of the resolution of the Research of the Research of the resolution of the Research of the Res

adopted.

At the same meeting a resolution was adopted "instructing the Executive Committee to revise the resolutions relating to the recommendation of standards, and report to the next annual meeting what action, if any, is required to correct existing errors and discrepancies in the previous action of the Association."

of the Association."

After the adjournment of the Convention an examination of the discussion and action of the Association showed that the Committee's report was amended in such a way that its recommendations were in substantial agreement with the standard for dead-blocks adopted the year before, and that in resulty the only question to be submitted was whether the thickness of the blocks should be changed from 6] or 1 7 in. to 8, and that the Committee did not recommend. No letter ballot was therefore taken on the resolution of Mr. Goodwin.

win.
In 1884 the Executive Committee recommended "that the distance, 12 in., between dead-blocks, recommended at the Sixteenth Annual Convention, be changed to 14 in.;

that the length over all be changed from 28 to 30 in., and the distance from centre to centre made 22 in., instead of 20."

This recommendation was submitted to letter-ballot the same year and was adopted. In the engraving printed in the circular sent out with the letter-ballot, the double dead-blocks were shown 8 in. thick, in accordance with the action of the Association of the year before. No distinct ballot was taken with reference to a change of the thickness of the blocks, but it was said in the circular that the proposed changes were shown in the engraving. It is therefore a little doubtful whether 6 in. or 8 in. is the present standard of thickness for double dead-blocks. Fortunately the matter is one of not very great importance. With the exception of the thickness of the blocks, about which there is some doubt, the engraving on page 137 of the last Annual Report represents correctly the present standard dimensions of dead-blocks.

Your Committee are quite well aware of the disfavor with which any change of standard already adopted by the Association is regarded, and properly so, by a majority of its members. Nevertheless, if there is good reason for making such a change, the sooner it is done the better. In the case of the standard dead-blocks, it will be seen that the height from the tops of the rails to the under side of the sill is 3 ft. This would make the height to the centre of the dead-blocks 40 in. The height of draw-bars and dead-blocks of 24 of the principal railroads is given in the following list:

NUMBER OF CARS OWEED BY, AND STANDARD HEIGHT OF DRAW.

NUMBER OF CARS OWNED BY, AND STANDARD HEIGHT OF DRAW BARS AND DEAD-RIOCKS ON DIFFERENT ROADS.

Number of cars	top of rails to	Height from top of rails to centre of
owned.	draw-bar.	dead-block.
	in	in.
N. Y. C & H. R 31,117	23%	44
N. Y., W. S. & Buf 7.721	33	42
Pennsylvania 47,013	35	42%
N. Y., L. E. & West. 31,000	34	4234
Lehigh Valley 24,247	35%	***
Del. & Hud. Can. Co., 11.392	3314	4434
But., N. Y. & Phila 5,680	34	4334
Del , Lack. & West 24.000	321/6	***
Chic., Bur. & Quincy. 17,940	33	401/4
Chic., Rock Is. & Pac. 8,081	. 33	40
Chicago & North 21,000	33	411/6
Illinois Central 9,075	33	4116
Grand Trunk 10.375	33	41
Intercolonial 4.745	33	4016
Missouri Pacific 18,050	3316	42
Central Vermont 3,256	33	40%
Bur., C. R. & North 4,307	35	42 *
Mobile & Ohio 1,553	3416	411/6
Lou., N. A. & Chicago 2 286	35	4312
Chi., Mil. & St Paul., 20,498	3316	411/4
Detroit, Lan. & Nor. 2.681	33	3934
Chesapeake & Ohio 5.953	35	4310
Baltimore & Ohio 21,912	35	4416
Chicago & Alton 6,666	32	4312

Chesapeake & Ohio ... 2,912 35 43%
Baltimors & Ohio ... 21,912 35 44%
Chicago & Alton 6,666 35 43%

From this it will be seen that on only three of the roads are the dead-blocks placed as low as the standard height. All the other roads place them higher. This is tolerable good evidence that the standard height is too low.

By comparing the height of draw-bars in actual use on the different roads named, it will be seen that a majority—15 of them—are over 33 in. high. If we count the cars owned by those roads, we find that those lines which place the draw-bars higher than the Master Car-Builders' standard own 239,755 cars, whereas those which have adopted 33 in. or under, own only 100,798. It is fourteen years since the standard height of 33 in. was recommended by the Car-Builders' Association, and yet it has not secured a more general adoption than the figures which has been quoted indicate. All the members of the Car-Builders' Association will agree that it is very desirable to secure uniformity in the height of draw-bars. The question then comes up, with the prevailing practice which has been described, what is the best method to adopt to secure uniformity? Is it to adhere to the standard which was adopted fourteen years ago, or would the end aimed at be best secured by a modification of it to suit the existing practice of the principal lines? Doubtless, if the standard was to be established to-day, it would be made higher than it was in 1872. As already stated, in 1884, when the standards were revised by the Executive Committee, they recommended that the height of draw-bars should be 2 ft. 9 in. "when the car is loaded to its full carrying capacity." The Association overruled the recommendation of the Committee, and made 33 in the height when the car is empty. The discussion of this subject, however, revealed that many of the members misunderstood that the standard height was to be measured when the car is loaded. In recommending a standard for dead-blocks the Committee were compelled to consider the

in. when the car is loaded, nor more than 3 ft. 9 m. when it is empty.

3. That when double dead-blocks are used that their vertical height and their width, measured crosswise to the track, be each 8 im., and their thickness, measured lengthwise to the track, be 6 in.; that they each consist of a casting as represented by the drawing submitted with this report.

4. That when a beam, attached to the end-sill, is used for carrying the dead-blocks, that it be made 36 in. long, not less than 4 in. thick and 8 in. vertical depth.

5. That in other respects double and single dead-blocks be made in conformity to the standards heretofore adopted by this Association, as shown in the drawings submitted with fais report.

this Association, as shown in the drawings submitted when this report.

6. The Committee also recommend that the nuts on the ends of the truss-rods be seated in cup washers, so as not to project beyond the surface of the end-sill, and that the space between the ends of the cars be kept as clear as possible of bolt heads or other objects which are liable to catch the clothing or injure those engaged in coupling cars.

Further, the Committee recommend the adoption of the following resolution:

Resolved, That the recommendations of the Committee on Dead-Blocks be submitted to the members of the Association Chas. Blackwell, G. W. Demarret,

M. N. Forner,

M. N. Forner.

Mr. J. W. CLOUD: The Committee has taken up the question of draw-heads and dead-blocks together. When springs are compressed solid draw-heads do not extend beyond dead-

the cars have adopted the standard height. He considered that the New York Central would not care to raise their height again.

Mr. FORNEY explained that Mr. Buchanan, Superintendent of Machinery of the New York Central, quite approved of the change proposed by the Committee.

Mr. Adams considered that was because the dead-blocks on the New York Central were 4 in. too high now, while their draw-bar was within % in. of proper height.

Mr. FORNEY having studied the subject for many years, considered that if large lines would adopt the same heights that smaller lines would follow. The Committee had consulted with representatives of the New York Central, Pennsylvania, Baltimore & Ohio and Erie. One of these lines had a height of 2 ft. 10 in., and two of 2 ft. 11 in. All were higher than the Master Car-Builders'. In such a matter, the minority must follow the majority, and the proposed change was most likely to bring about uniformity. We regretted the change, but must try to bring about uniformity. It was easier to raise the height of a car than to lower it. If we were without standard now, one higher than 2 ft. 9 in. would be adopted.

Mr. Adams said that car bodies, especially flats, should be as low as possible for convenience of loading.

Mr. Wood moved that the recommendations of the Committee be discussed seriatim.

The motion was carried unanimously.

First resolution: 2 ft. 11 in. for empty and 2 ft. 9 in. for loaded cars.

Mr. Wall moved that this question be submitted to letter

loaded cars.

Mr. Wall moved that this question be submitted to letter

ballot.
Mr. CLOUD moved to add that this convention is of opinion

Mr. CLOUD moved to add that this convention is of opinion that this is a proper standard.

Mr. Wall accepted this addition to his motion.

Mr. HITCHCOCK (Connecticut River), on behalf of the New England roads, objected to change as being inconvenient. They have obeyed the rule and should receive full consideration.

They have obeyed the full and should be more inconvenient for the large companies who would have more cars to change.

Mr. McKenna (Delaware, Lackawanna & Western) said his own road owned some 30,000 cars of the present standard height, and objected to any change.

Mr. CLOUD pointed out that an immediate change was not required, simply that new cars should be built to the new standard, and old cars repaired to it.

Mr. McKenna asked what advantage was to be gained by the change.

Mr. MCKENNA asked what advantage was to be gained by the change.

Mr. CLOUD pointed out in reply that the trunk lines had to compete in carrying freight and cheapen cost of transportation. This had led to larger cars with larger trucks, and more room is wanted to meet new conditions. This resolution does not force anyone to alter existing cars to 2 ft. 11 in. Springs compress about ½ in. under load, and therefore new cars built 2 ft. 9½ in. would be 2 ft. 9 in. loaded, Cars should be within the limits for safety of men. The Pennsylvania standard was 2 ft. 11 in., and cars could not be made lower with large trucks.

Mr. G. W. Rhoddes (Chicago, Burlington & Quincy) observed that the Association should be cautious as to changes. The difference (2 in.) between the heights proposed might be reduced.

reduced.

Mr. VERBRYCK (Chicago, Rock Island & Pacific): Our road is interested in overland traffic in which cars must not exceed a certain height, and we could not alter some cars. Some furniture and agricultural implement cars must not exceed 14 ft. in height. This was his only reason for opposing

hange.
W. B. Snow (Illinois Central) could not see any advantage
o be gained by change.
Mr. W. Forsythe (Chicago, Burlington & Quincy) thought
here was no mechanical advantage in increasing height of

there was no mechanical advantage in increasing height of draw-bar.

Mr F. D. Adams (Boston & Albany): There was a very general effort to adhere to standard in this matter. Cars could be built amply strong enough to carry any load and retain the same height. He moved that the question be laid on the table indefinitely. Carried.

Mr. CLOUT moved to amend section 20 that the proposed height of dead-blocks be reduced 1 in. to correspond with the 2 ft. 9 in. standard.

Mr. Adams again moved that this be laid indefinitely on the table.

Carried.

It was unanimously resolved to submit the third and fourth sections to letter ballot.

Mr. W. B. Snow suggested in the sixth section it was intended to have a cup-washer outside the sill.

The section was approved.

Mr. CLOUD moved that the following resolution be submitted to letter ballot: "The face of the draw-head shall not extend beyond the face of the deadwood double or single when the spring is fully compressed by buffing."

Many deadwoods were really of no use, and did not keep the cars far enough apart to take excessive shocks off drawbars.

Mr. GAREY moved that the single deadwood be omitted, as mder the resolution the pins could not be drawn.

Mr. CLOUD admitted his resolution was aimed against ingle deadwoods.

Mr. Garey's amendment was carried, and Mr. Cloud with-

The report of the committee on a standard freight truck as then discussed.

The report of the committee on a standard freight truck ras then discussed.

The figures were asked for for the cost of one M. C. B. reight truck.

The following figures were then given by Mr. W. Forsythe Chicago, Burlington & Quincy) as the cost of constructing nestandard freight car truck at Aurora, the truck being nade in accordance with the drawings submitted by the Committee.

1.066 lbs. of wrought-iron at 1.73 cents Bolis and nuts S866 lbs. cast-iron at 1.80 cents Wheels at \$9.35 Wheels at \$9.35 Boesring, 35@12 cents Springs at \$4.84 Oak bol-ter and spring plank. Oil, waste, pains, coal, etc Total.....LABOR. \$109.64

as follows	1:						
Materials. Labor		 		 	 	\$1	110
Labor		 ***		 	 		13

Mr. Wall then read the report of Committee on End Platforms, suggesting that the scope of the Committee be enarged.

The report was accepted.

The report was accepted.

Mr. Forney moved that the Committee be empowered to ubmit two standards, one with and one without end platorms, the Committee being continued and its scope enlarged.

Mr. McWood thought there was little advantage in the end letter.

platform.

After some further discussion the motion was carried.
The Convention then adjourned till the following day (Tuesday).

The following is a list of the new members who have joined the Association since the last Convention:

NEW MEMBERS.

NEW MEMBERS.

M. M. Martin, Wabash, St. Louis & Pacific.
Clement Hackney, Union Pacific.
W. A. Stone, Louisville, Evensville & St. Louis.
W. B. Hatch, Central Vermont.
John Cowan, Allegheny Valley.
Geo. H. Harris, Pittsburgh, Cincinnati & St. Louis.
W. A. Scott, Chicago & Northwestern.
N. Slingland, Housatonic.
Thomas Sutherland, C. & G. & D. G.
C. J. Butler, Corning, N. Y.
J. B. Wilson, Detroit, Mackinac & Marquette.
D. W. Ballentine, Seaboard & Roanoke.
J. B. Brady, West Shore Railroad.
David White, Intercolonial Railway.
F. B. Griffith, Delaware, Lackawanna & Western.
R. H. Wilson, Lehigh Valley.
A. Troyman, Pullman Palace Car Co.
SECOND DAY'S PROCEEDINGS, MORNING SESSION.

SECOND DAY'S PROCEEDINGS, MORNING SESSION.
was announced that the annual dues will be \$5 per

It was announced that the annual dues will be \$5 per vote.

Mr. Forney asked what action should be taken as to the standard form of wheel tread and flange.

Mr. Lentz explained that the form of wheel tread was not adopted by letter ballot because sufficient votes were not recorded in time.

Mr. Forney said this was so, but one-half of the members of the Association did not vote at all.

Mr. Lentz moved that the form recommended at the last convention be again submitted to letter ballot.

Mr. Forney said this form had been already submitted twice to letter ballot and rejected. It would, therefore, be better to discuss the matter thoroughly now. Personally he preferred a ½-in. radius at throat of flange.

Mr. J. W. Marden (Fitchburg): Great diversity of practice exists among permanent way engineers as to guard rails, heads of rails, etc., but there is a tendency to enlarge radius of corners of rail head.

Mr. F. D. Adams (Boston & Albany) urged members to vote on letter ballots. He did not consider the radius important. 'The New England Club considered taper might be reduced, but he thought uniform diameter of wheels was the most important point.

Mr. J. Davis Barnett, the President of the Master Mechanics' Association, here entered the room and was greeted by the Convention.

Mr. Godfrey W. Rhodes had found that coned treads

y the Convention.

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n steel-tired wheels gave greater mileage than cylindrical

in steel-tired wheels gave greater mileage than cylindrical treads.

Mr. T. A. BISSELL 'Barney & Smith) said his experience coincided with Mr. Rhodes'.

Mr. J. W. CLOUD would also prefer a slight cone, and would suggest that the proposed cylindrical portion be coned Join, and the slight cone be rounded into the outer coned portion of the tread.

Mr. DAVENPORT said many thought the wheel would be more durable if the throat was 's-in, radius instead of 's-in, radius. Correspondence in the Railroad Gazette had shown that wheels and rail heads should not coincide in contour. He proposed a form of tread differing from that proposed by the Committee, and having a 's-in, radius in root of flange. Mr. MARDEN asked what part of the rail produced sharp flanges with only 's in, radius. It was obviously the corner of the rail head, and therefore the radius of throat must be important, and greater mileage and fewer sharp flanges would be obtained if rail and tread conformed in shape.

Mr. DAVENPORT did not wish to match the rail and tread, but thought that 's in, radius of head, and 's in, radius in root of flange would give the best results.

Mr. F. M. WILDER: On the Erie 5 per cent, of the 16,000 wheels removed annually were removed for sharp flanges.

Mr. MARDEN had found the roadmasters were open to conviction as to enlarging radius of rail head.

Mr. Davenport's proposed section was then voted on and rejected.

-in. radius. Mr. Davenport's proposed section was then voted on and

GRAVES (Baltimore & Ohio) objected to the cylin-tread, but had adopted the %-in. throat and the flange

proposed.

Mr. Mackenzie (New York, Chicago & St. Louis) preferred the old form of tread, all on one cone.

Mr. McLwaine had found that the new wheel tread reduced the number of breakages and damage to frogs.

Mr. Mackenzie's form of tread was voted on and rejected.

Mr. Cloud's form of tread was voted on and carried.

Mr. Forney explained that the Committee on Standard Brake Shoes recommended the adoption of two standards, the Collins shoe and the Christie shoe. Patents on both had expired.

expired.

Mr. Rhodes thought that if the two shoes were adopted and run together they would soon find which was the best.

Mr. Adams thought that as it was impossible to get a two-third vote for either shoe, they had better adopt both as a

compromise.

A vote was taken on submitting the adoption of the Christie head and shoe to a letter ballot; 41 were in favor and 32 against.

The report of the Executive Committee on the trial of car couplers at Buffalo in September last was then read and accepted, and the Committee continued.

Briefly the Committee recommended that the Association take no hasty action on the matter, and that they considered the following couplers, of four different types, as most worthy of further trials:

McKeen.

Marks and Archer, if made to couple automatically with one another.

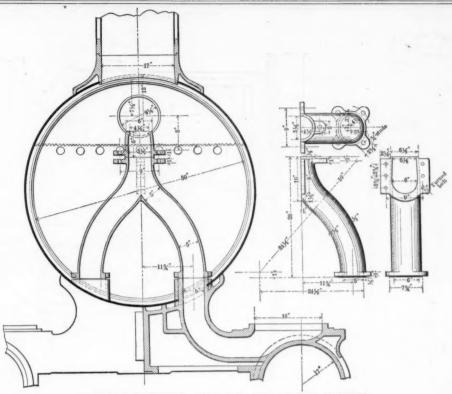
\$15.26

Janney, Thurmond and Dowling, if made to couple auto-

Janney, Thurmond and Dowling, if made to couple automatically togeth will in future consider only those couplers. The Committee will by fiven members of the Association. The conclusions of the report are as follows:

INFORMATION THE EXECUTIVE COMMITTEE ON CAR COUPLERS.

The trial in service is, however, progressing, and if the Association in the continued with the process of the consider only such as to them seems best of new and improved couplers which may be largely be longith to their attention outcome beneficial to the railroads of the country. In reviewing the present state of the automatic coupler question, this Committee feels grave doubts as to whether there is to the country of the country. In reviewing the present state of the automatic coupler question, this Committee feels grave doubts as to whether there is to the country of the country. In reviewing the present state of the automatic coupler, we believe that the danger of trainmen in handling cars would be justified in applying to its cars. For insamuch as other roads themselves would be greatly increased. Until the time, therefore, when the principle of the automatic of the country of the fitted, and by the company would be increased, owing to the vast interchange of cars are cauplers to the roads themselves would be greatly increased. Until the time, therefore, when the principle of the activation of the fitted, and the present of realing the old general style of coupling, and we carnestly recommend that the energies of this Association at this time be devoted to acceptage and getting into practice, as draw-heads and dead-woods, believing as we do that we will thereby be pursuing the wisset course for the present to save employes of railroads from bodily injury. And the present of the couples which have not been sufficiently proven beforehand, and out of all the couplers which have not been sufficiently proven beforehand, and out of all the couplers which have not been sufficiently proven beforehand, and out of all the couplers which have not be



IMPROVED BLAST-PIPE USED ON OLD COLONY RAILROAD.

cimens are shown of the Dixon and of the Thurber

steel-tired wheels.

A model is shown of the Brunswick wrought iron spoke wheel. L. S. Colburn exhibits specimens of his combined wood and paper brake-shoe as used on the Elevated road of New York. Mr. James Abbott has a model of a car lock, which can be worked from the top of the car.

Notice of some devices for use on locomotives will be post-poned to the report of the Master Mechanics' Convention.

illustrated in the Gazette. The Hubbard & Tilton Carloupier is also exhibited. The Gramps Car Coupler and an Throw one cylinder is apt to blow back down the passage lead-interpretary of the Van Liew grain doors are shown. The Couple hilding-door handle for baggage, mail and express earlies of the Van Liew grain doors are shown. The Couple hilding-door handle for baggage, mail and express earlies exhibited. The McKeen automatic sash lock down window. The Moore Manufacturing Co., of Chicago, exhibits a freight door which when closed is flush with the side of the early the lever for operating jams the door tight and to the car; the lower for operating jams the amode of the cars the lower for operating season and the control of the cars the lower for operating season and the control of the cars the sast mode of the frameles roof for cars.

Master Car-Builder Hutchings exhibits a model of his frameles are shown. A working model is exhibited of Hemis's skiling safety roof for postal and baggage cars. Two cars with this device are now running on the New York Central Railroad. Johnson's fastener is also shown. The Hewitt Car Door Co. exhibits a model of its device. The Faragon and-friction door-langer is shown by the Dunhard Manufacturing of the state of the cars of the state of Tests of Ties in Boston.

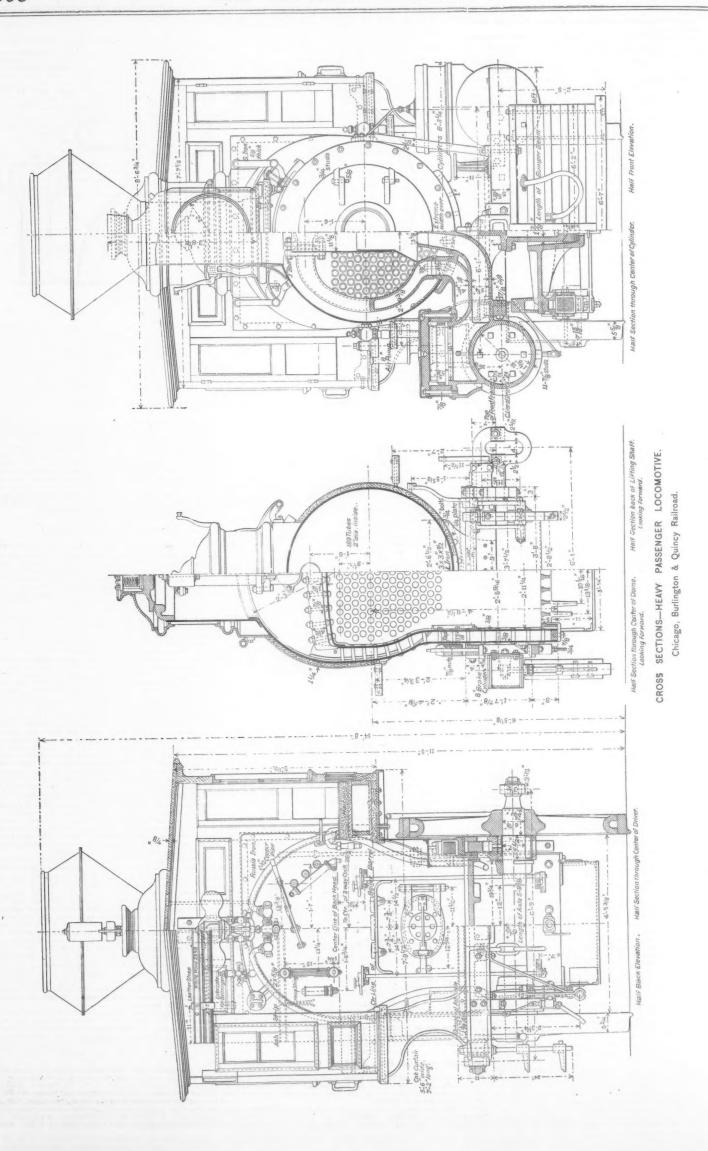
Mr. C. S. Sargent, Director of the Arnold Arboretum of Harvard College, in a paper entitled "Some Additional Notes on Tree and Tree Planting in Massachusetts," which is printed in the annual report of the State Board of Agriculture of Massachusetts, describes the results of an experiment made at his suggestion by the Boston & Providence Railroad to determine the value of different woods for cross ties. Dec. 12 and 13, 1878, 52 ties were laid in track in Boston, beginning 775 ft. west of the Tremont street crossing, of the following varieties: 3 American larch (tamarack), 9 white oak, 6 European larch grown in Massachusetts, 6 western catalpa, 6 ailanthus, 6 black spruce, 2 Southern hard pine, 2 white elm, 6 hemlock and 6 canoe birch. The catalpa ties were furnished by the late Mr. E. E. Barney, of Dayton, 0., who took great pains to call attention to the qualities of this wood. The ailanthus was grown in Bristol, R. I.: the last 22 ties named, including the black spruce, the Southern pine, the white elm, the hemlock and the canoe birch were croesoted by the Hayford process, and were included at the request of Mr. E. R. Andrews.

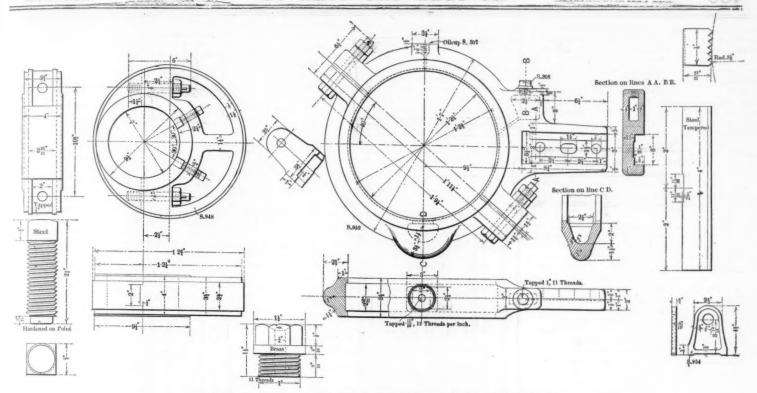
So far it has been necessary to renew these ties as follows: November, 1882, one ailanthus (defective when laid): June, 1883, four European larch, two catalpa. The two American larch, two ailanthus; July, 1884, one catalpa, two ailanthus, two spruce; October, 1885, two catalpa. The two American larch ties remaining will probably have to be removed this year, and the sixth and least of the European larch, the four remaining spruce, the two Southern pine and the six hemlock ties. Eight of the nine white-oak ties are but little worn, and promise to last many years longer; the two elm and six birch ties (preserved) are perfectly good, and show little worn, and promise to last many years longer; the two elm and six birch ties (preserved) are perfectly good, and show little worn, and promise to last many years longer; the two elm and six birch ties, preserved and of

Improved Blast Pipe Used on Old Colony Railroad.

The accompanying engraving represents an improved blast pipe designed by Mr. J. N. Lauder for use on some heavy assenger engines which are now being built at the Old Colony shops in Boston.

The advantages of a single nozzle blast pipe have often been proved in practice, but unless the junction of the two exhausts is carefully designed and proportioned, the exhaust





IMPROVED ECCENTRIC AND STRAP FOR 18-IN. CYLINDER LOCOMOTIVES.

Chicago, Burlington & Quincy Railroad.

whole mass of wood under the rail is reduced nearly to pulp by the separation of the layers of annual growth and the breaking of the fibre. This disintegration has penetrated so deeply that if the ties, otherwise perfectly sound, were turned over, the wood which would then come under the rail would not have sufficient thickness to hold the spikes. The pressure, however, to which these ties have been subjected has been unusually severe, and there is nothing in the behavior of these catalpa tres to show that they would not, in a road with lighter traffic, have stood for a number of years, and resisted as well and probably better than ties made from any other equally soft and less durable wood. The result thus far obtained with the alianthus wood is not satisfactory; the wood was not well selected, and one tie was practically useless before it was laid. Alianthus wood, however, is hard and solid and will probably make excellent ties.

The spruce, Southern pine and hemlock, although creosted, did not give much better results than the uncreosted larch, and it is evident, therefore, that it will not pay to use any of these woods for this purpose.

The result on the other hand, with the creosted elm and birch has been highly satisfactory. These are hard, solid woods, but so liable to decay in contact with the soil as to be unfit for ties, unless protected by some preserving process. Elm and birch are easily cultivated and grown with rapidity; and as ties of these woods can be sold cheaply, they should, with a cheap and effective preserving process, form important factors in the tie supply of the Northern states.

The white oak has proved the most enduring of all the uncreosted ties laid down for this experiment, and white oak mould make the very best tie which could be raised in New England, were it not that it holds spikes so firmly that it is practically impossible to draw them, when it becomes necessary to shift or change the rails. For this reason chestnut, unfortunately not included in this trial, makes, all thin

Passenger Locomotive, Chicago, Burlington & Quincy Railroad.

The inset and other illustrations represent what is termed on The above railroad a "Class A" engine. These engines are built with two sizes of cylinders, 17 in. and 18 in. in diameter respectively. The engine with 17-in. cylinders has already been illustrated and described in the Railroad Gazette.*

Two sizes of driving-wheels are used, 65 in. diameter on the control of the contro tread for freight and 69 in. for passenger engines. Our illustration represents the 18-in. cylinder engine for passenger service, the dimensions of which are given in the following

Dimensions, Weight, Etc., of an 18-in, Cylinder Class & Engine, Chicago, Burlington & Quincy Railroad.

Fuel used.	General Dimensions. Bituminous
Gauge of a Driving-wi Main drive Wheel-bas Hind drive Distance to Wheel-bas Total wheel	10
Diameter .	of drivers on tread
	" engine truck wheels
Stroke of	piston 24

* See Railroad Gazette, Nov. 14, 1884, pages 814 and 815.

Weight.	
Tractive force per lb. average pressure in cylinders	Lbs. 1112 7 pas 1119.6 frt
	27,000 27,500
	54,500 28,300
Total weight of engine	82,800
" water (2.750 gals.)	24.183 22,917 14,550
Total weight of tender	61,650
Total weight of engine and tender in working order. 1	44,450

Transverse distance centres of cylinders	6 1
Diameter of cylinders	18
	24
Stroke of piston	
Horizontal thickness of piston over piston-head and	417
follower-plate	416
Kind of piston packing	Dunbar.
Diameter of piston-rod	3
o eccentric-rod pins	11/6
Size of steam-p: rts	
Size of steam-p: rts	216 × 16
	478 X 101/
Width expansion link	216
Greatest travel of slide-valves	
Diameter and length of sadule-pin	134 × 4
	% pass. 34 frt.
Outside lap of slide-valves	34 frt.
	1 nase
Inside lap of slide-valves	12 frt.
Lead of slide valves in full stroke	87.
Diameter rocker	31/8
Sectional area of opening in each steam-pipe con-	
nected with cylinders	16 sq. in.
necoca with Cymaders	
Crank-Pins and Journals.	
	in.
Main connecting rod, length between centres	8716
" diameter and length crank-pin	4 × 4
Main connecting-rod, cro s-head pin	234 × 3
Coupling-rods, diameter and length crank-pins	
Coupling-rous, diameter and length crank-plus	
section	
Driving journals, diameter and length	7 × 7%
Truck a via journals (angina) diameter and length	5 × 9

Cylinders, Valves, Etc.

	Coupling-rods, diameter and length crank-pins 31/6 × 31/6
	section H. Driving journals, diameter and length 7 × 71/6
ı	Truck axle journals (engine), diameter and length 5 × 9
	Boiler.
	Description of boiler Wagon top.
	Description of boiler. Wagon top. Thiside d ameter of smallest boiler ring 4 ft. 1½ in. Material of bairel of boiler. Steel Thickness of plates in barrel of boiler . %in.
ı	Horizontal seams. Lap seams, double riveted. Lap seams, table riveted. Lap seams, double riveted. Lap seams, table riveted. Lap seams, table riveted. Lap seams, table riveted.
	norizontal seams double riveted.
	Circumferential seams
	Vertical power
-	Tubes, arrangement
k	" number
	is diameter outside
ì	length over tube-plates length over tube-plates Size of fire box, inside length × width × depth from under side of crown-plate to bottom of in. × 35¼ in. × 35¼ in. × 35¼ in. × 35½ in.
	Size of fire box, inside length x width x depth (72 in x 3514
•	from under side of crown-plate to bottom of in x 6014 in.
	mud-ring
5	Water spaces, sides, back and front of incood
	Material of outside shell of fire box Steel. Thickness of plates of outside shell of fire box % in.
L	Material of inside of fire-box
	Thickness of plates in sides, back end and crown of
	fire-box
8	Material of tube-plates Steel.
	Thickness of front and back tube-plates
	Crown-plate stavs
	Diameter and height of dome 28 in. × 24 in.
	Maximum working steam pressure per square inch 145 lbs.
	Kind of grata Rocking.
	Width of bars
	Width of opening between bars
	Grate surface
	Grate surface
	Heating surface of the inside of tubes 958.2
	Total heating surface 1,080.3
	Kind of blast-nozzle, single or double Double.
	Diameter of blast-nozzle
	Smallest inside diameter of chimney 17 in.
	eight from top of rails to top of chimney 14 ft. 8 in.

62			.3			
1	e	11	a	е	т	è

Ei	
3:	ght.
length 384 in X 1	7 in.
14 ft 1	1 in
4 ft. 6	8 m.
ic inches) 2,750 gr	alis.
	lbs.
ft	. in.
10	8 6
	3 7
	3 7 8 3
	length, 3% in, ×' 14 ft. 1 wheels of

It will be noticed that the weight of the valve motion is balanced by an adjustable coiled spring attached to a short bell crank on the lower end of the reverse lever. This tends to keep the strain on the lever constant in one direction, and as the reach-rod is placed in tension, it is less liable to vibrate than when the relief spring is placed in the ordinary position. The reach-rod measures $2\frac{1}{2}$ in. \times $\frac{1}{2}$ in., and the eccentric rods are 3 in. \times $\frac{1}{2}$ in. in the centre of their length.

The cylinders are horizontal, but their centre lines are 2 in. above the centre line of the driving axle.

Both the piston-rods and valve-rods have metallic packing in the glands.

The eccentric and strap shown is an improved form adopted on the 18-in. cylinder engines. The strap formerly in use was only 23/4 in. wide and was a constant source of anno yance and delay to trains, owing to slipped eccentrics. The eccentrics are set-screwed to the shaft in place of being keyed, as is the practice on some roads. Mr. Godfrey Rhodes, the Superintendent of Motive Power, at first thought seriously of doing away with set-screws and keying the eccentrics, thinking that it was improper workmanship that caused the slipping. A full investigation of the matter, however, showed that the slipping was entirely due to the eccentric getting hot. If the eccentric had been keyed on, the whole valvegear would probably have been torn down when the strap heated and seized, as the sheave would then be unable to yield to the strain.

It was clear that the difficulty was not in the method of

securing the eccentric to the shaft, but because the strap did not have sufficient friction surface; the width of the eccen-tric was, therefore, increased from 2¾ in. to 3¾ in. This has almost entirely remedied the trouble, and now trains are rarely delayed through slipped eccentrics. We are indebted to Mr. Godfrey W. Rhodes, Superintend-

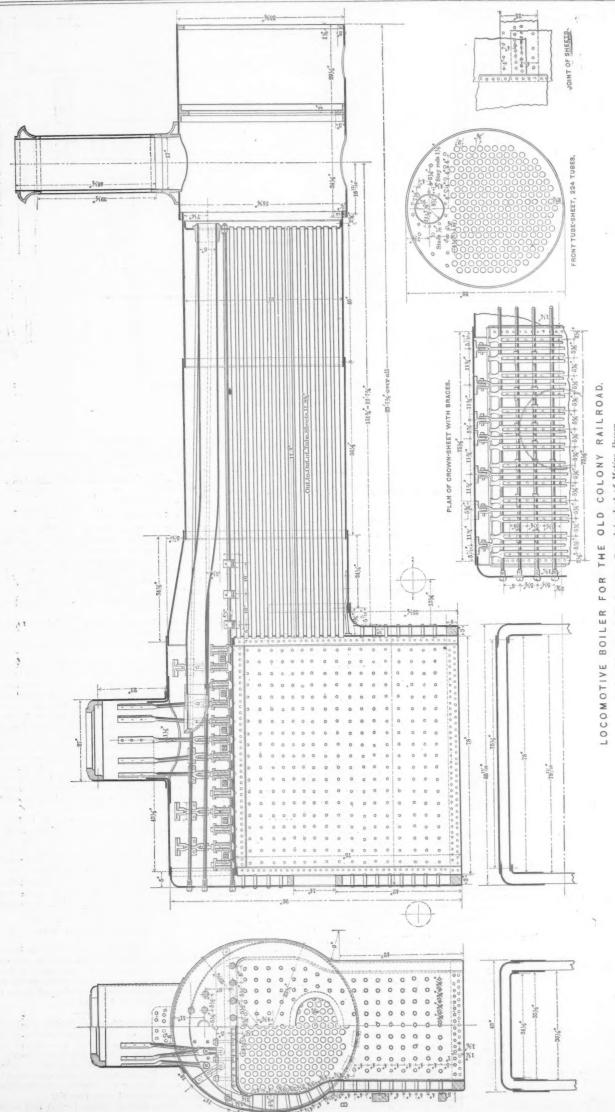
ent of Motive Power of this railroad, for the remarkably clear and detailed drawings from which our illustrations are prepared.

Foreign Railroad Notes.

The Mallet compound locomotives first introduced on the Bayonne-Biarritz road in France are now in operation on Bayonne-Diarritz road in France are now in operation on the Northern of Spain and the Southeastern of Russia. On the latter road the regular four-coupled engines are being converted into compounds by replacing one of the cylinders by a larger one of 231/4 in. diameter.

The John Cockerill Works, of Seraing, Belgium, recently secured a contract for a lot of about 2,500 tons of steel rails, to go to Queensland, Australia, at a a price, it is said, of about \$17.50 at the works, the lowest we have ever seen reported. The Belgians boast of getting such an order from an English colony in the face of English competition, but there really seems nothing for Belgium to rejoice over. It is

Queensland that should do the boasting.
On the other hand, at a letting for 500 tons of steel rails



Designed by Mr. J. N. LAUDER, Superintendent of Motive Power,

John Cockerill bid \$25.20, while the Bochum works bid \$24.40 and got the contract. A Brazilian order for 8,000 tons goes to a German works at about \$19.30. The Cockerill Works some time ago got an Italian order for 18,000

Locomotive Boiler, Old Colony Railroad.

The accompanying illustrations represent a boiler for a class of large passenger engines now in course of construc tion at the shops of the Old Colony Railroad in Boston, Mass. The boiler is intended to carry a very heavy pressure of steam, 175 lbs. per square inch, and is therefore very strongly proportioned. Mr. J. N. Lauder, the Superintendent of Motive Power of this line, has taken considerable pains in designing this boiler, to have strong points and seams throughout. It will be noticed that the mudring is double riveted, a practice common in England, but unusual here The boiler is also very strongly stayed, a row of stays being placed just clear of the crown of the fire-box and beneath the crown-bars. This arrangement will doubtless answer with the good water usually found among the granite rocks of New England, but with hard or muddy water from an alluvial or lime-laden soil, such an arrangement would soon furr up with scale.

The particulars of the boiler are as follows:

HEATING SURFACE

224 tubes, 11 ft. 3 in. long, 2 in. diameter	1,310 sq 138	. feet
Total	1,448	66
Grate-area	19.2	4.6

LIST OF PLATES.

Snett.	
	in, in, in,
Spark box, 1	
Smoke arch, 1	175×35× ¾
Smoke arch, 1 1st ring, 1 2d ring, 1. Top connection, 1 Bottom connection, 1 Throat sheet 1	170×51× 15
2d ring, 1	
Top connection, 1	112 × 48 × 76
Bottom connection, 1	96×28× 7
Throat sheet, 1	81×71× 7
Throat sheet, 1. Sides and crown, 1. Dome, 1.	
Dome, 1	
Dack nead, 1	102×68× 🖼
Tube sheet, 1	57½ diam. × ½

Fire-Box,

	m, m,	ш.
Tube sheet, 1	 771% × 55 ×	1/6
Back sheet, 1	 771% × 55 ×	5
Side sheet, 2	 781% × 77 ×	5
Crown sheet 1	70 " . E4	20

For Welts. 1..... 58 in. × 50 in. × 5 in.

							S	'n	n	0	k	e	S	šŧ	a	ci	k.								
 																					in.	×	in.	×	in
 				 																	56	×	391/2	×	3

Note.—All longitudinal seams to be double riveted with welts as shown in detail; vertical seams single riveted. All rivets to be of ¾ in. diameter, spaced 2 inch apart from centre to centre. All staybolts to be 1 in. diameter and nearly 4 in. apart. The top row and front row down to 33 will have ½ in. holes drilled 1 in. deep in outside ends. These staybolts to be screwed in from the inside and riveted over, the hole being afterwards opened ¼ in. with a centre punch. All braces to be made from 2 in. × % in. iron, the forked ends and crow-feet from 2½ in. × % in. Crown-bars, 5 in. × ¾ in.

Contributions.

The Bethlehem Meeting of the American Institute of Mining Engineers.

TO THE EDITOR OF THE RAILROAD GAZETTE :

This meeting, which proved to be a most delightful and instructive one, was held in a place whose history runs a long way back into the past century, Bethlehem having been founded in 1741. The ride to it and beyond it is one of the most picturesque and beautiful in the country, and it at once impresses a stranger as a truly wide awake, thriving town. The members were divided be tween the Sun Hotel and the Eagle. The former was con structed by the Moravians in 1781, and the license to keep it was granted by George III. It would have been well if he it was granted by George III. It would have been well if he had confined himself to such licenses. Its sign-board of 1764. which shows the sun in meridian splendor, still remains, and in revolutionary times it afforded a shelter for a no less celebrated body than the American Congress. It is further distinguished among old buildings by never having been Wash tanguished among old buildings by never naving been it assists a figure of a partial property. The entertainment at both hotels seemed to be quite satisfactory. The writer, being patriotic, preferred to stop at the Eagle out of regard to the national bird, and because the "Sun," like its sign-board, was a ful_l

The first meeting was held Tuesday evening at the Sun Hotel Hall, and was largely attended. The Burgess, Mr. Geo. H. Meyers, delivered an address of welcome, and the President of the Institute, Professor Richards, responded felicitously, and commenting on the warmth of the reception and the coolness of the atmosphere declared the Bethlehemites had learned to keep their heat in the Bessemer converters. This was followed by the inaugural address on the subject of "American Mining Schools." The writer evidently believed in a most thorough combining of practice with theory and he showed some of the plans followed by the various institutions in their laboratory work. He also showed by statistics the various facilities offered by the different schools. He debated the question of the effect of college graduation as a preliminary step to a scientific education, and did not consider it of as much advantage as many, but favored raising the stand-

a candidate could be received, and thought a five years' course preferable to a four years' one

A paper on Stamp Mills and Chlorination Works was then presented, and the evening closed by an exhibition of a safety lamp by Wolfe, which was shown and explained by Dr. Raymond. There are 29,000 of these lamps used in German mines: the flame is fed with benzine held in a cotton sponge and gradually admitted to the wick, and the lamp cannot be opened except by a powerful magnet, so that miners must now light their pipes with a match if they wish to blow up the mine. The wick never needed picking or trimming, would not go out, and it was lit by an automatic device. Mr. Ashburner inquired if it was readily extinguished, and on being told it was not, evidently felt a keen sense of sympathy and shower by a drawing a lamp which was.

The next day a large number were on hand to visit the ex-ensive works of the Bethlehem Iron Co. Having visited them in 1873, the writer was greatly impressed with their rapid growth, although when the energy, industry and ingenuity of Mr. John Fritz is considered, nothing seems to get a chance to be quiet under his skill and application. These works wer commenced in 1860, and Mr. Fritz has designed and superin tended all the buildings and machinery—a monument to bim such as few ever receive, ${}^{\bullet}_{\bullet}$ His name will be remembered as long as there is any Bethlehem or any iron works. There are eight anthracite blast furnaces, and the Bessemer metal turned out is of a very superior quality. One of these furnaces ran seven years without blowing out, and made 70,000 tons of pig iron on one lining. The horizontal compound blowing engines have certain novelties of arrangement of Mr. Fritz's invention, and run noiselessly and smoothly. From five of these furnaces the melted iron is delivered direct to the steel works.

The machine shop is a massive stone building 253 ft. × 64, and the foundry is 107 × 64. The iron mill has three "double-double" puddling furnaces, seven double and one sin gle, and has nine heating furnaces. There is a 21-in. puddle train, rail train and merchant train. This mill turns out 1,500 tons of iron and 3,000 to 4,000 tons of steel monthly.

The steel works were commenced in 1870 and completed in The steel mill consists of a nave 931 ft. × 111 ft with transepts 111 ft. wide and total length of 386 ft. converting department has four seven-ton vessels, threbeing worked alternately and one being off for repairs. The shells are 8 ft, in diameter and mica schist is used for lining. and the nose is lined with fire-brick. One of these lining will last for 30,000 tons of ingots, and the output is about

4,000 tons weekly.

The blowing machinery consists of two Res engines located in the upper transept; the smaller engine has two cylinders, 36 in. \times 60 in., coupled with two blowing tubs, 48 in. \times 60 in. The larger engine has two cylinders, 54 in. \times 60 in., and two blowing tubs, 60 in. \times 60 in. The blast pressure at the blowers is $1\frac{1}{4}$ lbs., and 1,200 at the tuyers. A Worthington duplex and two Worthington compound duplex pumps supply a pressure of 300 lbs. to the square inch to operate the cranes, hoists, etc. There are two Pernot furnaces and their accompaniments in the opposite transept, and in the main portion of the mill are 6 Siemens reheating furnaces

The rail mill has three sets of rolls, and the engine is an upright compound, 36 in. high pressure and 56 in. low pres sure, 50 in. stroke. The rolls are 24 in. and three-high. There was in process of erection a new mill, designed to roll heavy sections and long lengths. The train is 120 ft. long will be driven by three high-speed compound engin one shaft, their aggregate horse-power being 8,000. train is driven as follows: friction wheels made with a bevetoward the centre, forming a double convex surface, rotate the rollers, and at right angles to these wheels and in front and behind them are similar wheels on a continuous shaft, which is moved forward or backward by means of a hy draulic cylinder, and thus the cones driving the rollers are engaged with the cones either in front or behind them, ac-cording as the rollers are desired to rotate from right to left or from left to right. There are two trains, some 6 ft. apart and the product of the rolls is hoisted bodily from one bed to the other by means of a curved arm working on a rock shaft and fitted with a hook attachment at its end to prevent the har from falling off.

Another novel invention of Mr. Fritz is a circular saw de Another novel invention of all. Friez is a circular saw designed to cut the rails obliquely and at any desired angle, thus making a scarf joint instead of a butt joint. It is believed by many that this will better distribute the strains on the rail, as the wheel will not pass off one rail before it encounters another. It certainly seemed to the writer that a rail cut thus obliquely, with the Fisher joint added, would be about the perfection of a track, and it is to be hoped your enterprising contemporary who kindly permits you to issue with it will give this idea an early and thorough investiga-This saw is operated by being set in a rigid frame, and having in its shaft a cog wheel which can be rotated to the saw at the desired angle. The whole frame is moved for ward as the saw cuts by means of an hydraulic cylinder, and the steam pipe furnishing power is telescopic.

The annual product of these works is as follows:

Mr. Robert H. Sayre is General Manager, and Mr. A. S. Schropp, Secretary, to whose courtesy and attention your correspondent was greatly indebted for the information here

The zinc works, which are among the oldest and largest in the United States, were then visited. The ore comes from ard of admission and also the requirement as to age at which tapped, and the metal cast for the benefit of the visitors.

In the afternoon the members visited the beautiful grounds and buildings of Lehigh University, which is provided with all the best modern appliances for prosecuting scientific studies. The institution is richly endowed by its founder, Judge Packer, and has also received benefits from other members of his family. In fact, a beautiful memorial building is in course of construction near the gate. With its ans, its able corps of professors, its apparatus, and its extremely suitable location, Lehigh University bids fair to become one of the very best scientific schools in the world. Already its alumni are adding to its fame, thus perpetuating that of its founder. Dr. Lamberton, the President, made a few well-chosen remarks welcoming the Institute, responded to by President Richards. Mr. Ashburner then read an ex-tremely interesting paper on the geology of the Wyoming Valley in connection with the Nanticoke disaster,

He was followed by Mr. Howe with a paper on the "Attainment of Uniformity in the Bessemer Process," and this was succeeded by Mr. J. C. F. Randolph's paper called "Notes on Chinese Coals," Mr. R. having recently returned from a trip taken for the Chinese government. Mr. Randolph's conclusion as to the value of those coals was not a favorable one, and he further commented on the great injury the action of the United States, in regard to the Chinese, was doing our own interests there.

At the evening session, Mr. Ashburner delivered a lecture on the geology of this region, illustrated by topographical and geological maps, and Mr. C. R. Boyd, of Wytheville, Va., read a paper on the "Economic Geology of the Bristol and Bigstone Gap Section of Tennessee." He also exhibited a sample of semi-magnetic ore. A number of papers were en read by title, and the meeting adjourned for the

The next day a large party started for the Glendon Iron Co.'s works and inspected the blast-furnaces and engine-house, and thence to the Andover Furnaces, where the Whitwell hot-blast stoves were being erected. At Durham siding the party were transferred into gondola cars—that is, all who had the nerve to try the descent. This included the ladies, many of the timid souls, all men, preferring to walk, and as the walking was not first-class, it was evidently not chosen from inclination on their part, but from the inclination of the ground, which pitched sharply toward the river, and evidently to the walkers' minds suggested the idea of pitching sharply into the river. At the bottom (of the incline, not of the river) was a scow with rails laid on it, and soon the cars were safely on its deck, and the transfer, by means of a swing ferry worked by a traveler on ropes, was safely made to the other side. The party, some 300, were received by Mr. Facken hal, Manager of the Durham Furnace, and were conveyed to his house, where every attention and the most lavish hospitality was shown them. When a host makes claret punch of the best Chateau Lafitte, there is little more to be said of the character of his ospitality. In this case the spirit-gauge is the true test.

Durham furnace is historical, having started in 1727, and

t was here one of the great chains stretched across the Hud on River during the Revolution was forged and cann balls cast.

The party were now carried back beyond the experience of most to the ancient methods of transportation and em-barked on three canal boats for a trip to the Delaware River at Milford, some six miles distant, which proved to be a most charming trip.

An elegant reception at Lehigh University concluded the day, and dancing was kept up till a late hour. The floral decorations were numerous and extremely tasteful; so, by the way, was the supper.

A visit to the Thomas Iron Works at Hokendaqua began

the next day, and while here some of the party saw a Conklin ore-concentrator, just erected under the superintendence of Mr. Abbott, one of the members. The laboratory here is very complete and the works quite extensive. After they had been inspected the party were taken to Rittenhouse Gap and shown the iron mines. In the afternoon, a large number went to the slate quarries. A visit to Friedensville to see the zinc mines and the immense pumping-engine, which occurred the next afternoon, concluded this extremely interesting ses-Nothing had been forgotten for our pleasure or insion. struction, and Bethelehem will undoubtedly be long rem bered by all the Mining Institute for her lavish, elegant and cordial hospitality.

Foreign Technical Notes.

In Austria (and in many other countries of Continental Europe), certain trains on secondary (light local roads) roads are worked as so-called tramway trains. These trains carry no baggage car.

They stop at a number of points where no station is pro-vided, for the purpose of leaving or taking passengers who

vided, for the purpose of teating of taking passagets who have neither baggage nor dogs.

They carry only two classes of vehicles, and transport no express matter. Finally, the engines are run without turning around.

Glaser's Annalen contains a vigorous defense of the Whitworth system of screw threads (fractional inch progression, with rounded angle) against the attempt to introduce a metrically divided progression for screw threads, with an angular thread like the Sellers system.

The author shows pretty conclusively that the Whitworth rate author shows pretty conclusively that the Whitworth scale and form of screw-thread is overwhelmingly the standard in Germany. He considers the use of the Whitworth scale unobjectionable with the metric system; use of numbers to express different sizes being entirely practical. He argues from the experience of the United States that the Sellers form is a very hard one to cut with a tap and very destructive to

THE SCRAP HEAP.

A New Game on the Rail.

Heavily Ballasted Roads.

Train Wrecking.

Solid Satisfaction.

The Lebanon Bridge Accident.

THE SCRAP HEAP.				-	R	AIL	ROAD E	ARNING	S IN AP	RIL.					
Too Wide. In response to a circular letter recently issued from this office religion for information representing the change of gauge.	W. w.		MIL	EAGE.				EAR	NINGS.			EAI	ININGS	PER M	ILE.
office, asking for information respecting the change of gauge, an officer of one of the prominent southern companies wrote us that after June 1 the gauge of his road would be 9 ft. 4 in. Discovering, on the following day, the mistake made by	Name of Road.	1886.	1885.	Inc. D	ec. P. c		1886.	1885.	Inc.	Dec.	P. e.	1886. 1	885 I	nc. De	c. P. c.
the typewriter, he wrote us the foll-wing, which is too good to keep: "It is often remarked of a man's veracity that his statements are 'all wool and a yard wide.' The statement we made to you in our last letter, with reference to the gauge of the after June 1, demonstrates that we 'see the old saw and go it a few better,' for our stetement is something over three yards wide, to say nothing about the	Balt. & Potemac Buff., N.Y. & Ph. Buff., Ro. & Pitts Daubury & Nor Grand Trunk Long Island	92 663 294 37 2,99× 354	294 37 2,977			7	\$ 109,183 214,676 77,969 16,559 1,520,794 216,868	\$ 130,336 . 182,557 103,083 16,230 1,436,439 204 712	\$ 32,119 329 84,355 12,156	25,114	16.3 17.5 24.4 2.0 5.8 5.7	\$ 1.187 1 324 265 448 507 613	,417 275 351 439 483 578	9 95	5.0
wool. "Our assertion that the gauge would be 9 ft. 4 in. would have been more accurate, if less surprising, had we turned the thing end for end, and said, 4 ft. 9 in. It must have been either a lapsus lingue, or a lapsus lunne, or a lapsus machine—too many laps, as we look at it, for any well regulated track."—Official Guide.	N. Y. City & No. N. Y. L. E. & W. N. Y. & N. Eng. N. Y. & N. Eng. N. Y. Ont. & W. N. Y. Sus. & W. Northern Con Penn. Railroad Phila. & Reading West Jersey	1,075 392 321 150 322 2,324	54 1,075 392 373 150	56	52 14.	0	42,114 1,418,702 314,504 93,712 87,316 411,397 3,862,617 2,177,972 102,365	32,603 1,201,648 262,102 143,121 90,332 450,010 3,764,890 2,343,973 94,208	9511	49,409 3,016 38,613 166,001	29.3 18 1 20.0 34.5 3.3 8.6 4.3 7.1 8.7	802 29 2 582 1,278 1,662	,111 669 384 602	176 209 133 1 28	29.3 18.1 20.0 92 24.0 20 3.3 20 8.6 1.7 107 7.1
A New Game on the Rail. "Yes, braking is pretty hard work, and we don't get much fun as we go 'long," said a freight brakeman, as his caboose stood by the station waiting for orders; "but there's a new craze on among the boys which gives us a good deal of sport. It is freight train baseball." "Baseball on a freight train?"	Total, 15 roads		0,811		52	2 1	0,666 748	-	573,810 270,504	303,306	7.3	984	962	22	
"Yes, sir; and it's great fun, too. We don't do any batting, but we're great on fielding. The head brakeman stands on the front car, the rear brakeman in the middle of the train, and the conductor gets up on the caboose. Then we play yitch with the fireman for referee. There ain't many errors, now let me tell you. An error means a lost ball, and the man that lets it get away from him has to buy a new one. The feller that makes a wild throw, or the one that fails to stop a fair thrown ball is the victim. The craze has run so high that I'll bet there ain't a dozen crews running out of Chicago that don't carry a stock of baseballs along in their caboose."—Chicago Herald.	Chesspeake & O. Ches., O. & S. W Cin., N. O. & T.P. East T., V. & Ga E., Lex. & B. S. Ill. Cen., So. Div. L., N. O. & Tex. Louis. & Nash. Mem. & Char Mobile & Ohio N., Chat. & St. L.	502 399 336 1,100 130 711 533	502 399 336 1,100 130 711 455 2,065 292 527 580 195 512	78		1	317, 162 124 071 204, 351 277, 376 65, 743 276, 302 94, 470 967, 740 96, 287 128, 068 172, 812 46, 948 267, 559 340, 800	290,002 119,244 194,008 276,688 55,688 338,073 86,161 1,158,699	27,160 4 827 10,343 678 10,055 8,309 7,431 61,075 39,703	61,771 190,959 2,707 360 16,35!	9.4 4.1 5.3 0.2 18,0 18,3 9.6 16,4 2.7 0.3 4.5 25,8 29,6 13,3	632 311 608 252 506 389 177 480 243 298 241 523 450	189 561 339 244 285 325	54 12 31 78	9.4 4.1 5.3 0.2 18.0 18.0 12 6.4 81 14.4 9 2.7 1 0.3 4.5 84 25.8
Heavily Ballasted Roads. In making an order recommending the restoration of passenger-train service on the Leavenworth, Topeka & Southwestern road, the Kansas Railroad Commissioners make the following remarks, which might well be applied elsewite: "It is alleged by the petitioners that a little effort has been	Ch , Col. & A Col. & Green'e, Ga. Pacific Va. Midland West. N. Caro. South Carolina Vicks. & Merid'n Total, 22 roids	377 296 317 352 286 246 142	377 . 296 . 310 352 . 274 246 142 .	12	2. 4	3	54,467 41,162 62,377 127,604 39,845 71,582 37,505 3,903,103	52,828 39 481 49 853 124 094 36,656 68,846 32,059 3,968,904	1,639 1,681 12,524 3,510 3,189 2,736	272,148	3.1 4.2 25.1 2.8 8.6 4.0 17.0	144 139 197 363 139 291 264	140 133 161 353 134 280 226	6 36 10 5 11 38	3.0 4.2 22.5 2.8
made by the operating department to render the passenger train a paying institution. However this may be, it is quite apparent to the board that the lack of depot facilities at Leavenworth, and inconvenient location of its terminus at that city, together with its slow rate of speed, has not made it an attractive route for travel between the two termini of	Total inc. or dec.	252	25?	47	1	4				65,801	17.0	539	461	78	8 2.2
the road. "Considering the magnificent sum of money expended in and about—we presume chiefly about—the building of this road, being upwards of \$35,000 per mile exclusive of stock subscriptions, it ought to be a first-class road with the best equipments, but it is poorly constructed in all respects, except its bonded debt, which constitutes all of its equipment. "The present owners, however, are in no wise responsible for this condition of things, since it came to their hands after it had been thus ballasted. "The city of Leavenworth, and the several townships along the line of the road to	Chi. & W. Mich. C., I., St. L. & C. C., Wash. & Balt. Clev. Ak. & Col. Cleve. & Canton. Col. H. V. & T. Det., Lan. & No. Ev. & T. Haute. Flint & Pere M Ill. Cen., Ill. lines Ind. Dec. & Sp. L. Ev. & St. L.	413 342 281 144 161 328 261 146 362 953 532 152 253	342 281 144 161 324 261 146 362 953 532 152 253	4	1	60	108,278 193,831 142,077 41,288 27,336 163,730 98,339 54,109 201,253 434,898 174,483 26,118 63,300	119.521 180.999 135,180 41,181 22,773 166,851 108.942 53.947 168,812 451,693 169,900 19,456 53,119	107 4,563 	11,243 1,121 10,603 16,795	7.1 5.1 0.3 20.0 0.7 9.6 0.3 19.2 3.7 2.7 34.2 19.2	262 567 506 287 170 505 377 371 555 456 328 172 250	289 531 481 286 141 515 417 370 466 474 319 128 210	25 29 1 89 44	27 9.4 7.1 0.3 20.0 10 1 9.6 0 3 19 2 18 3 7 9 2.7 9 2.7 34.2 19.2
the amount of \$74,000. The liberal amount of aid thus extended by the people to the building of the line entitles them to be heard, we think, independent of other public considerations, and gives them a right to expect reasonable accomodations from a line which they helped to create. "While we do not hold as a rule that passenger train service should be maintained upon all lines of railroads in this state, whether it would pay to maintain it or not, for we think that such a rule universally applied would in some instances be harsh and unjust, yet we are clearly of the opinion that it is not always a sufficient reason for withholding such	N. Y., Penn. & O. Ohio & Mississip. Ohio Southern . St. L. Al. & T. H.: Main line . Heleville line Tl. Ann A. & N.M Wab., St L. & P. Total, 21 roads Total inc. or úcc.	587 615 130 195 138 61 2,207 8,513	587 615 130 195 138 61 2,207 8,509	4			474,490 270,198 34,018 78,519 41,002 20,705 1,028,339 3,814,052	393,182 288,964 38,809 95,745 55,099 20,563 867,877 3,568,679	142 160,462 340,015 245,373	18,766 4,791 17,226 14,097	12.3 18.0 25.6 0.7 18.5	448	670 470 298 491 399 337 393 419	73	*** * * * * * * * * * * * * * * * * * *
service that it does not pay. It is sometimes necessary to sup- ply facilities far ahead of present demands for the purpose or as a means of increasing a demand for their use. In this case the putting of a passenger train on the road nearly doubled its previous passenger earnings." Train Wrecking. A dispatch from Savannah, Ga., June 8, says: "The night express on the Georgia Central Railroad was wrecked at Rogers, 85 miles west of Savannah, this morning. A block of wood tightly wedged between the rails at a switch by train wreckers threw the engine and three cars from the track.	Mar., H. & Ont Mil., L. S. & W	990 500 850 3.646 4.921 3,948 1,340 143 220 402 160 533	500 850 3,467 4,804 3,840 1,320 143 220 402 160 491	179 117 108 20	1	1.1 2.4 2.8 1.5	211,635 95,954 572,580 1,952,740 1,764,000 1,741,600 468,400 22,441 30,852 126,900 32,331 157,485	245,457 92,152 591,637 2,065,070 1,927,264 1,770,829 464,892 28,435 23,318 127,329 22,645 111,570	3,802 3,508 7,534 9,686 45,915	33,82 19,05 112,33 163,26 29,22 5,974	4.1 7 3.2 0 5.4 8.5 1.7 0.8 21.0 32.3 9 0.3 42.8 41.0	192 674 538 358 441 350 157 140 316 202 295	586 401 461 352 199 106 317 142 227	34 . 60 . 68 .	34 13.8 4.1 22 3.2 58 9.7 43 10.7 21 4.6 2 0.6 42 21.0 32.3 1 0.3 42.8 29.8 12.4
The fireman, Charles Maddox, was killed, and Engineer William P. Prendergast was severely injured." Solid Satisfaction. Messrs. W. Arrol & Co., of Glasgow, are about to construct the superstructure of the Hawkesbury Bridge, New South Wales. The Union Bridge Co. will do the piers only,	Mil & Northern. Wiscon'in Cen Total, 14 roads. Total inc. or dec.		227 440 17,854			2.6	52,880 133,561 7,363,359	47,074 136,363 7,654,017	76,251	2,809 363,909 290,659		233 304 402	207 310 439		27 ···· 6.3
so that at least the ironwork will be English after all.—Manufacturing World and Steam-Users' Journal. A Romance of the First Railroad. It is related that when the first Maine railroad was started, about 45 years ago, W. C. Pitman, of Bangor, was a conductor. One rainy morning he started from Waterville, and on arriving at North Belgrade, a flag station, not seeing any flag, ran by the station. Just as the train had passed the red flag was run out for some passengers to get on. Mr. Pitman asked Stephen Richardson, the station agent, why he did not	Total inc. or dec.	7,978		14	1	0.9	835,542 993,483 97,492 611,700 2,538,217	692,141 877,665 61,696 712,408 2,343,910	295,015 194,307	100,70	. 13.2 57.8 8 14.1	362 433 412 318	226 357 274 484 325	11 . 5 159 .	4.8 1.3 57.8 72 14.9
display the flag before. Mr. Richardson replied: "Be you a-goin' to run your train in rainy weather? I didn't think you would." The Lebanon Bridge Accident. The New Hampshire Board of Railroad Commissioners has made the following report on the accident at Lebanon on the	Fort W. & Den G., C. & S. Fe K. C., Ft. S. & G. K. C., S. & Mem. Little R. & Ft. S. Southern P. Co.: Atlan, System.	144 660 389 282 168	110 536 389 282 168 1,646	124	25	5.6	35,582 157,600 221,899 131,230 43,506	30,923 85,136 202,082 131,309 36,960	6,546		85.3 9.8 0.1 17.7	239 570 465 259 457	281 159 519 465 220	51 . 39 . 35 .	
Northern Railroad: "At noon, on April 30, the locomotive 'Atlantic,' drawing 'B' freight on the Northern Division of the Boston & Lowell Railroad, entered the Chandler bridge over the Mascoma River in Lebanon. The train, consisting of 16 freight cars, was bound south. When the locomotive reached about the centre of the bridge, which was 124 ft. long, a single span wooden bridge of the Childs' pattern, the bridge broke at the	Total, 9 roads, Total inc. or dec	5,156	814 735 170 4,850			3,3	331,891 73,662 31,291 1,821,808	352 493 68,055 23,346 1,625,446	7 945 317,042 196,362	20,68	8 2 34.5	100 184 353	433 92 137 335	18	8.2 34.5
centre, falling 13 ft. Under the momentum of the train and the instant opening of the throttle by the engineer, the locomotive and one car passed through the bridge, and were turned into the ditch. No person was hurt and the damage was light to the locomotive and cars. "Unfortunately, the bridge was burned to facilitate the erection of a temporary structure, and no critical examina-	A., T. & S. Fe Den. & Rio G Den. & Rio G.W St. J. & G. Isl'd. Union Pacific	2,418 1,3:7 368 252 4,519 8,874	2,375 1,317 368 252 4,499 8,811	20		1.8	1,261,479 485,782 68,000 90,415 2,113,440 4,019,116	1,297,825 449,659 68,082 72,165 1 987,191	36,123	8	8.0 2 0.1 25.3 6.3	366 185 359	546 338 185 286 442 440	73	24 4.4 8.0 25.3
tion of the parts was made to ascertain the cause of the accident. From the testimony of the Engineer and the Bridge Superintendent of the Boston & Lowell road, the conclusion seems wholly warranted that the bridge gave way from the heavier service to which it was subjected than it was constructed to bear. It was built 21 years ago, and was never adapted to any but the comparative light service then in	Total inc. or dec GRAND TOTAL: Total, 90 roads Total inc. or dec	70,572	68,896	1,778	102		*****	33,432,122	144,194	1,194,82	3.7	484			1
				•				-							

RAILROAD EARNINGS. FOUR MONTHS TO APRIL 30

	1			- 1927	11	NINGS, I					1				
NAME OF ROAD.		Mn	EAGE.				EAS	ININGS.			E	ARNING	S PER	MILE.	
NAME OF MORD.	1886.	1885.	Inc.	Dec.	P. c.	1986,	1885.	Increase.	Decrease.	P. c.	1886.	1885.	Inc.	Dec.	P. c.
				-		EAS	TERN ROADS								
14 6 D		00				\$	8 490	8	\$ 000		\$	8	8	\$ 379	70
alt. & Potomac. uf., N. Y. & P uf., Roch. & P.	92 663 294	92 663 294				410,587 760,754 380,00	445,487 678,467 360,154	82,287 19,852		7.8 12.1 5.5	1,147 1,293	1.023	124		7.8 12.1 5.5
an. & Norwalk.	37	37	21		0.7	62,167 4,901,516	60,322 4,637,158	1,845 264,358		3.0	1,680	1,630	50		3.6
ong Igland	354 54	354 54				701,844 159,753	666,913 121,920	34,931 37,833		5.2 31.0	1,983 2,958	1,884 2,258	99 700		5 2 31.0
Y. City & N. Y. L. E. & W. Y. & N. Eng. Y. Ont. & W.	1,075	1,075 392	*****			5,385,239 1,174,524	4,661,111 982,553	724,128 191,971	********	15.5	5,010	2,507	674 489		15.5
	321 150 322	373 150 322		52	14.0	353,028 332,527 1,702,628	492,681 320,600	11,927	24,007	28.0 3.7	1,010 2,217 5,288	2,137	80	311	3.7
enn. R. R	2,317 1,560	2,268	49		2.1	14,735,487 8,478,914	1,726,635 13,693,490 7,904,486	1,051,997		7.6 7.3	6,360 5,435	6,038	322 368		5.4 7.3
Vest Jersey	200	200				325,931	303,676	574,428 22,255		7.3	1,630	1,518	112		7.3
Total, 15 roads. Tot. inc. or dec.	10,829	10,811	70 18	52	0.2	39,864,905	37,055,653	3,007,812 2,809,252	198,560	7.6	3,681	3,428	253 253		7.4
				- 1	- 11	SOUT	HERN ROAD	5.			1	1		1	
la. Gt. South hes. & Ohio	290 502					378,254 1,189,726	383,375 1,069,781	119,945	5,121		1,304		239	10	1.3
	200	399				493,971 857,910	475,476 814,026	18,495 40,884	*******	3 9 5.4	1,238	1,192	46		3.9 5.4
in , N. O. & T. P E. T., Va. & Ga. Eliz., L. & Big S. II. Cen., S. Div.	1,100	1,100		*** **		1,286,817 262,936	1,340,878 213,318		54,06	23 3	1,170	1,219			4.1
ll. Cen., S. Div.	10,010	2.065	78	50	2.4	1,274,076 4,170,962	1,577,702 4,694,273		303,620	11.1	2,070	2,218		427	19.5
Louis & Nash Louis N. O. & T. Mem. & Char Mobile & Ohio	533 292 527		78			521,468 432,856 587,130	393,949 450,759 685,559			32.3	1,48:	1,544			3.5
Nash., C. & St. L N. Or. & N. E	580 195	580				730,331	712,028 258,716	18,308	42.20	2.6	1,259	1,228	31	187	
Nor. & West Rich. & Dan	757	512 757				985,561 1,358,354	852,436 1,297,202	133,125 61,152		15.6	1,92	1.66	280		15.
C., Col. & Aug. Col. & Green Geo. Pacific	377	296		*****		285,047 253,420	289,993 251,161	2.259		0.9	750 850	769 3 849	3 1		1.
Vir. Midland Western N. C	317 352 286	352			2.3	251,176 440,654 161,947	216,875 449,587		8,93	15.8 3 1.9 14.4	1,25	2 1,27	7		. 2.
So. Carolina Vick. & Meridan.	246	216				{399,950 169,443	141,509 424,365 146,923		94 41	5.7	1,62	8 1.72	3		5.
Total, 22 roads. Tot. inc. or dec.	10,895	10,848	97	50	0.4	16,708,500	17,139,888			9	1,53		-	. 46	3
100, Inc. or dec.		******	**	•	0.4		TRAL GROU		. 201,00	9.0			1	46	8 2
chi. & East, Ill	259	252				540,189	499,078	1	1	. 8.5	2,14	4 1,98	0 16	4	. 8
Chi. & West. M	413	413				417,135 817,202	372,786 788,17	41,11 44,34 39,03	9	. 11.8	1,01	0 0 0 0 0 0 0 0 0 0	3 10 5 11	7	. 11
Cleve., Ak. & Col	281					619,301 150,943	602,440 146,47	16.86	1	2.8	2,20	4 2,14 8 1,01	4 6	0	. 2
Col., H. V. & To	161	324	4		1.2	98,596 691,651	711,11	9,06	. 19.46	7 2.7	2.10	9 2.19	6 h	6	6 3
Ev. & Terre H	146	146				358,276 219,557	346,358 212,398	7,15	8	3.4	1.50	4 1,45	5 4	9	. 3
Flint & Pere Mai Ill. Cent., Ill. lines Ind., Bloom & W	0.55	953				709,797 1,881,625 753,378	600,349 1,971,537 733,05	7	. 89,91	2 4.6 2 2.8	1,96 1,97 1,41	4 2,06	9	9.	634
Ind., Bloom.& W Ind., D. & Spring Louis., E. & St. I N.Y., Penn. & C	15: 25:	159				124,977 250,346	105,08 207,42	19,88 42,92	9	19.6	82	2 69	1 13	1	. 19
Unio & miss	OF:	5 615				1,812,392 1,124,566	1,563,95	248,43	. 74,16	. 15.1 8 6.1	3,08	8 2.66 9 1.94	4 42	12	0 6
Ohio Southern St L., Al. & T. H	130			*****		161,733	143,05	18,67	8	. 13.				4	. 13
Main line Belleville line. Wah., St. L. & P	19. 138 2,30	138	3			347,123 219,010 3,919,985	251,45		59,63 35,44	7 13.	1,58	0 2,08 7 1,84 1 1,67	4	. 30 25	
Total, 20 roads Tot. inc. or dec	8,55					14,217,692		691,67	2 278,69		1,66		5 4	8	
	1		1	1	1 1	NORTH	WESTERN B	OADS.	1	1	11	1	l.	1	1
Bur., C.Rap. & N	. 99	0 996	J			838,689	944,08	2	105,3	93 11.					
Central Iowa Chi. & Alton Chi., Bur. & Qui	. 85	0 85	0		5.1	388,861 2,284,283 7,393,149	2,456.64	5	2,9 172,3 905,4	27 0. 82 7. 30 10.	0 2.6	37 2,89		00	
Chi. Mil. & St. P Chi. & No. West Ch., St.P., M. & C	4,92	1 4,80	1 11	7	24	6,807,000 6,734,23 1,725,11	8,298,57 6,871,22 6,749,85	8	64,2	28 0.	9 1.3	33 1.43	30	4	7 3
		0 1.32	0 20		1.5	1,725,113 104,270 495,858	6,749,83 1,562,21 114,16	8	9,8	10.	4 1.2	29) 71	33 10	14	. 8
Ill. Cen., Ia. line Marq., H. & O Mil., Lake S. & V	16	0 14	4 1		11.1	109,939	9 84.30	7 8,70 7 25,63	32	30.	4 6	87 58	34 10	i	17
Mil. & Northern Wis. Central	23	7 22	7		8.6	497,073 195,14	179,00	16,13	38	38	0 8	80 7	39	71	8
Total, 13 road	ls 18.09		8 48			28,017,72			18 1,301,3	41	1,5				68 8
Tot. inc. or de	е		. 48	· · · ·	2.8	************				23 3				8	96 8
Canadian Pacifi	1000			-	1	11	RTHWEST O	1		1	_				
Northern Pacifi St. P. & Duluth St. P., Min. & Ma	c 2.74	2,45	3 28		17.7	2,457,12 2,926,16 310,95	9 2,692,8	233,3	46 11	22	.5 1,0 .7 1,3	68 1,0	98	18	30 5
St.P.,Min.& Ma	-	-			0.9	2,033,95	9 2,145,7	31	111,8	502 5	.2 1,3	70 1,4	5υ	1	89 6
Tot. inc. or de	ec	78 7,14	83		11,7	7,728,20		734,1 622,3	03 111.8	8	7	69 9	94		25 25
		1	1	T		11	HWESTERN I	ROADS.			ŧI	-			
Ft. Worth & Der Gulf, Col. & S. 1	F 69	14 11 25 53	36 8	9	30.9		7 110,4 3 356,7	75 236,5	88	66	3 8	63 1,0 49 6	66 2	83	41 2
K. C., Ft. S. & Kan.C., Spr. & Little R. & Ft. South. Pac. Co.	M. 2	89 38	32			448,41	.0 588,9	03	61,1	926 7 193 23	.2 2,0 .5 1,5	90 2,0	88	1	60 98 2
South. Pac. Co. Atlantic Sys.	1,7	68 10 38 1,50				184,65							080		***
St. L. & San Fra	an 8	42 8: 35 7:	14 5	28	8.8	2,823,79 1,302,87 410,10	0 1,323,9	58		088	1.6	547 1,6	326 117 1	47	69 79
Texas & St. L. Vicks.,Sh. & Pa	-	70 1	70	-		150,12	22 112,8	22 37,3	300	3	3.0	883 (364 2	19	3
Total, 9 road Tot. inc. or de	ls. 5,0	93 4,8	01 19	92		6,824,83	6,550,1	OMA A		147	1,2	340 1,	364		24 24
	1		1	1		11	ERN AND PA	CIFIC BOAL	08.	-	II				-
At., Top. & S. Denver & R. G Denv. & R. G	1.3	17 1,3	17	10		1,815,6	15 1,741,7	70 73,	333,		6.9 1,	379 1.	031	56	172
St. Jo. & Gr. Is Union Pacific	I'd 2	52 2	68 52			. 279,4	58 263,6 25 361,8	71 15, 558 7,	787		2.0 1,	465 1,	716 436	29	94
Total, 5 road	18. 8.8	71 8,8	08	63		7,130,8					-1-		000.4		24
Tot. inc. or d	ec			63		7	2,500,		307	753					46
Total, 88 road	8. 70.5	809 68,5			02	127,447.4	23 125,016,	6,032,	722 3,602	175	1.	813 1,	822 .		9
Total inc. or de	00		1,7		2.			2,430,			1.9				9

vogue. The locomotives of the class of the 'Atlantic,' which are ten-wheelers, weigh 45 tons, and with the tenders, 65 tons. Twenty years ago the heaviest locomotive on the Northern road weighed only 30 tons. The capacity of the freight cars, in the train that broke the bridge, was 20 tons. Twenty years ago the capacity was 10 tons. Here is an increase of dead weight of more than 100 per cent.

"This bridge was not adapted to such service. It had passed the average life of such bridges also. In fact, at the inspection one month previous to the accident, it had been considered as unsafe by the bridge superintendent, and report made that it should be renewed this season. Such was the intention of the management. The mistake in the case was, considering the character of the bridge and the heavy traffic to which it was subjected, that one or two horses were not placed under the bridge immediately. Such is the only safe rule when a bridge is suspected of weakness. In this case a passenger train passed over the bridge only 10 minutes before the accident. A similar bridge at Penacook will be immediately strengthened with arches, and horses have been ordered for the deck bridge in Lebanon. With these improvements the superintendent of bridges 'believes that all the bridges on the main line will be safe even under an 83-ton engine."

TECHNICAL.

TECHNICAL.

The First Railroad in America.

At the last meeting of the Engineers' Club of Philadelphia, Dr. R. P. Robins read a paper on the First Permanent Tramway in America, a summary of which is given by the Secretary of the club as follows:

The tramway was projected by Mr. Thomas Leiper, of Delaware County, Pa., in 1809, for the transportation of stone. After experimenting in the yard of the Old Bull's Head Tavern, Second street, above Yoplar Lane, Philadelphia, as to the feasibility of such a roadway, he advertised in the Aurora, of Sept. 28, 1809, as follows: "I wish to contract for the digging part of a railway, from my quarries on Crum Creek to my landing on Ridley; the distance and level has been accurately ascertained by Mr. Reading Howell. The distance is exactly three-fourths of a mile, and an accurate statement of the quantity of digging required may be seen from the plot in my possession, calculated by Mr. Howell. I also wish to contract for making and laying the rail part of the same, consisting of wood, a specimen of which, as furnished by Messrs. Large & Winpenny, may be seen by applying to them at their manufactory, adjoining the Bull's Head in Second street, in the Northern Liberties. The scanniling for the above will be furnished on the ground. I wish to progress in this work immediately."

The work of building and grading was immediately begun, the draft of the road being made by John Thompson, and the railroad was finished early in 1810. "The ascents were graded inclined planes, and the superstructure was made of white oak with cross-ties and string-pieces. The cars or trucks were very similar to those now in use, the wheels being made of cast-iron, with flanges." The road continued in active use until 1828, when it was superseded by a canal after the plan made by Mr. Leiper, but not carried into effect until three years after his death, when his son, the Hongergard to the claim of proving for this road, as with regard to the claim of proving for this road, which was being leaved to the

Transmission of Power by Belting.

At the recent meeting of the American Society of Mechanical Engineers in Chicago, a paper was read by Mr. Wilfred Lewis, of Philadelphia, on "Experiments on the Transmission of Power by Belting." Among the conclusions reached from these experiments are the following: That the co-efficient of friction may vary under practical working conditions from 25 per cent. to 100 per cent.; that its value depends upon the nature and condition of the leather, the velocity of sliding, temperature and pressure; that an excessive amount of slip has a tendency to become greater and greater, until the belt finally leaves the pulley; that a belt will seldom remain upon a pulley when the slip exceeds 20 per cent.; that excessive slipping dries out the leather and leads toward the condition of minimum adhesion; that raw hide has a greater adhesion than tanned leather, giving a co-efficient of 100 per cent. at the moderate slip of 5 ft. per minute; that a velocity of sliding equal to .01 of the belt speed is not excessive; that the coefficients in general use are rather below the average results obtained; that the sum of the tensions is not constant, but increases with the load to the maximum extent of about 33 per cent. with vertical belts and indefinitely with horizontal belts; that, as the economy of bel transmission depends principally upon journal friction and slip, it is important to make the belt speed as high as possible within the limits of 5,000 or 6,000 ft. per minute; that quarter-twist belts should be avoided; that it is preferable in all cases, from considerations of economy in wear on belt and power consumed, to use an intermediate guide pulley, o placed that the belt may run in either direction, and that introduction of guide and carrying pulleys adds to the interna resistances an amount proportional to the friction of their journals.



Published Every Friday.

EDITORIAL ANNOUNCEMENTS.

-All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

-Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railad officers, organizations and changes of companies the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, ointments, and especially annual reports, some notice of all of which will be published.

Advertisements.-We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COL-We give in our editorial columns OUR OWN opin ions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them edi-torially, either for money or in consideration of advertis ing patronage.

RATIONAL TESTS FOR RAILS.

It would perhaps be profitless to continue further discussion as to the causes of the badness of so many modern rails, since neither we nor any one else can do more than surmise, unless it might be the makers of the rails, and they profess at least to be unable even to surmise. As to the primary cause, that it has resulted from the lack of due effort by buyers to insure good quality and specify what was meant thereby, there can be no doubt, and it therefore seems a more hopeful direction of effort to consider a little more in detail what is a rational system of testing rails.

Any one having the opportunity and inclination (if they have the last they can pretty surely get the first can, we think, render a great service to his own company, and to the cause of good railroading in general, by making some investigations on something like the following lines :

The qualities which make up a good rail are only three :

1. That it shall resist deformation of section, or mashing in service.

2. That it shall wear well.

That it shall not readily break

All other qualities of the rail, bending strength, tensile, crushing, torsional strength, elongation, limit of elasticity, resistance as a beam to bending under impact, chemical composition, and what not, are apart from the purpose. Excellence in any one of them is not directly important to excellence as a rail. Therefore it is prima facie unimportant, and possibly even deceptive, to determine any one of them if direct tests of the qualities really wanted can be used (as it almost beyond doubt they can be) in this way:

Almost every large road has eight or ten or more brands of steel in use, some of which have proved good in service, and others bad. With the assistance of neighboring roads it would be an easy matter to get together a dozen or fifteen samples each of different rails of all degrees of goodness and all degrees of badness. A new rail or two from each of the leading mills might well be added to the same collection and put in a doubtful pile.

Now, to determine a test for the first quality, resist ance to deformation of section, flowing of metal on the surface or mashing at the joints, the most direct and conclusive evidence ought naturally to be the ease with which distortion of form could be artificially produced, say by the indentations of a chisel. This might well be determined thus:

Let each rail in succession be placed upon a perfectly solid support, and let a "chisel," made say of 14 in. steel, with a very obtuse edge, made thus: \ with the two faces either at 90' or some other fixed angle, be suitably supported on it. Let a certain tively. It is an all-essential quality, but no large permoderate fixed weight be dropped from a certain fixed centage of either good rails or bad rails break in ser

height upon this chisel a certain number of times; precisely what weight and height would be soon indicated, but it would not greatly matter, so long as it was definite and always the sam

The principle of this method of test is the same as that used in Captain Rodman's pressure-piston for measuring the explosive pressure of gunpowder, and it is found to be capable of very exact work. If then it was found, as in substance it unquestionably would be found, that all the rails which had proved very bad from over softness were indented more than a certain minimum, and all the rails which were conspicuously good were indented less than that, we at once have clearly indicated a certain limit of indentation which no rail as good as it ought to be in this respect will exceed; in other words, we have one of the most vital qualities of a rail definitely fixed by a test which any one can apply at any time with simple apparatus, and which, if it were now definitely fixed and known to rolling mills, as one which their rails would pretty certainly be subjected to, would probably be complied with in all cases

Then as to wear: The facts seem to be that rails which readily deform and flow likewise wear very rapidly, but however that may be, wearing qualities may be tested directly. The wear of rails is two causes: first and chiefly, direct sliding of the surfaces, one upon another. Whenever the two wheels are not precisely of equal diameter, or the bearing surface (however narrow) is not precisely parallel with the axle, or the flange impinges or tends to impinge against the side of the rail, or the direction of motion of the wheels is changed by their "wobbling" from one rail to the other, direct sliding wear results; in other words, sliding wear is going on all the time straight lines and curves alike. It is doubtful if this sliding alone will not account for substantially all the ear which occurs, but the second cause of rail-wear is like unto it, and is due, in a word, to the fact that the ragged fibres of the metal, which engage with each other and constitute the cogs which produce friction -are not bounded by epicycloids! This seems an extreme way of putting it, but it is the literal truth. Magnify those minute protuberances in imagination and it will be seen that sliding wear must result from their interlocking, as it must result from badly formed cogs.

It was acutely suggested by Dr. Dudley that the train on these fibres must be in the nature of a bendng strain—as it is, we may add, in a cogand hence that resistance to bending ought to furnish a good evidence of wearing qualities; but while there is bendng strain on cogs which sometimes breaks them off. it is not that which wears them, and, granting that nany more of our ragged minute cogs are broken off, the wear due to their "bad form" must be proportion ately greater vet.

We therefore are led to the conclusion that in either case it is direct sliding, and not rolling, of the metallic surfaces on each other which wears the rails, and it suggests at once a rational method of testing them for

Let a piece of the rail to be tested be fastened to the bed of a shaper. Let another piece of the same rail, ay 3 ft. long (to give weight) be placed at right angles across it, head down, and connected by a hinge joint with the moving arm of the shaper, in such way as to hold the upper sliding rail always horizontal but not to interfere with the free action of gravity. counter to the shaper, give it a certain fixed throw, let the two rails saw into each other for a certain number of throws, and measure the indentation, or loss weight, or both. Micrometers for doing this accurately are readily obtained.

Like the first test suggested, this promake the test measurably independent of the weight and pattern of rail, since the load is approximately proportional to the rubbing surfaces in contact. That it would furnish a positive indication of wearing quali-ties in the track we would not assert, but this at least is pretty sure, that it would have a far better chance of doing so than any test of such entirely impertinent matters as tensile strength or limit of elasticity; and f a series of tests on rails of known high and low durability in service disclosed analogous differences in the wear under these conditions—as it almost certainly would—we should have another test of a definite positive and simple character which any one of ordinary intelligence can make with the appliances which already exist in every shop, and which directly measures and gauges the very quality we want, and nothing

As to the third quality of a rail, resistance to breakwe trust we shall not be misunderstood in saying that it is one of minor importance to test quantita-

When they do break, they break in a quite different way from ordinary beams or other structural members. Instead of gradually giving way after great distortion of form they break suddenly from brittle The way in which some of the finest of the old qualities of rails used to break illustrates in an exaggerated way the nature of all rail breakages. It is well known that such rails, if dropped too suddenly upon other rails, would sometimes fly into several pieces, while the rest of the same rails once in the track would render the most excellent service. Any test, therefore, which subjects rails to breakage as a result of several distorting blows is to that extent defective, but its convenience and definiteness have led to its extensive use, and it is perhaps as well suited for the purpose as any other. A table prepared by Mr. C. P. Sandberg specifying certain limits of deflection for such tests was given in our issue of Feb. 26, and we shall have occasion shortly to publish another. Nicking and breaking alone afford a pretty good test of this quality, and it is one which both makers and buyers know how to judge of quickly. Therefore, while it is important that rails should be tested for this quality also, it is not so important, for no tendency for rails to differ radically in this respect exists. Any of the well-established limits for the endurance of good rails under impact may be taken.

A thorough series of such tests as we have outlined, made in a systematic and scientific way, and with the results definitely and carefully analyzed, would do more to cure the current evil of bad rails, we predict, than anything which has been done in recent years, and be of the greatest value to both makers and buvers.

May Earnings.

May earnings have been reported so far by 38 railroads, whose aggregates were :

1886. 1885. Earnings...... \$13,668,697 \$13,019,320 This is a considerable gain, though it is to be remembered that earnings were very poor last year in May, when 75 roads earned 8.8 per cent. less than in 1884, when 71 roads earned 5 per cent. more than in 1883. The gain in April last was but 2.1 per cent. and for the three months ending with March the gain of 90 roads was also 2.1 per cent.

All the roads northwest of St. Paul have reported

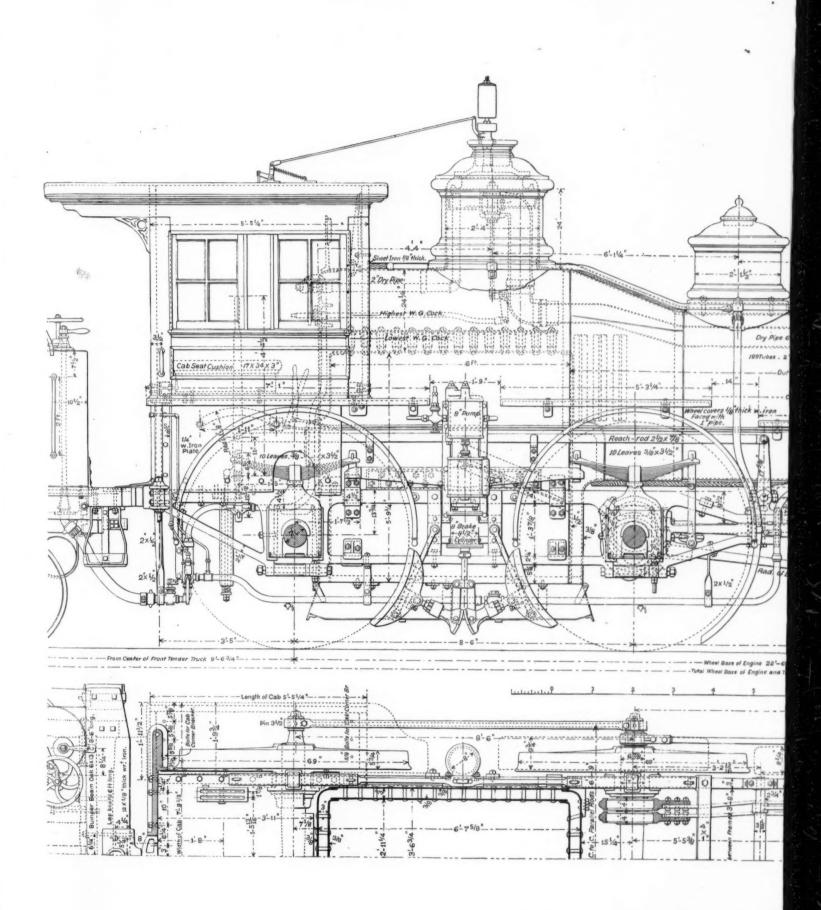
as follows: North'n Pac... St. P., M. & M. St. P.& Duluth 728,207 102,140

\$2,176,052 \$2,434,254 \$2,060,584 \$2,298,921 The Canadian Pacific shows a larger increase even than was to be expected from the increase in mileage, though its earnings were only \$244 per mile of road. Its average monthly gain previous to May this year was \$102,551, or 20½ per cent., against \$247,413, or 40 per cent., in May. The Northern Pacific's gain over last year is \$51,739, or 5.7 per cent., against an average monthly increase of \$56,446, or 8½ per cent., for the four months previous. The transcontinental war, which enormously increased the through business for a time, began about March 1, and in March the road had an increase in earnings of \$165,359 (24 per cent.) and in April one of \$110,257 (11 per cent.). This leads to the suspicion that the great stimulation of business by the low rates has ceased, and that the quantities moved have fallen to something like the average again, yielding much less earnings than in previous years. If so, the other traffic must have increased largely over last year.

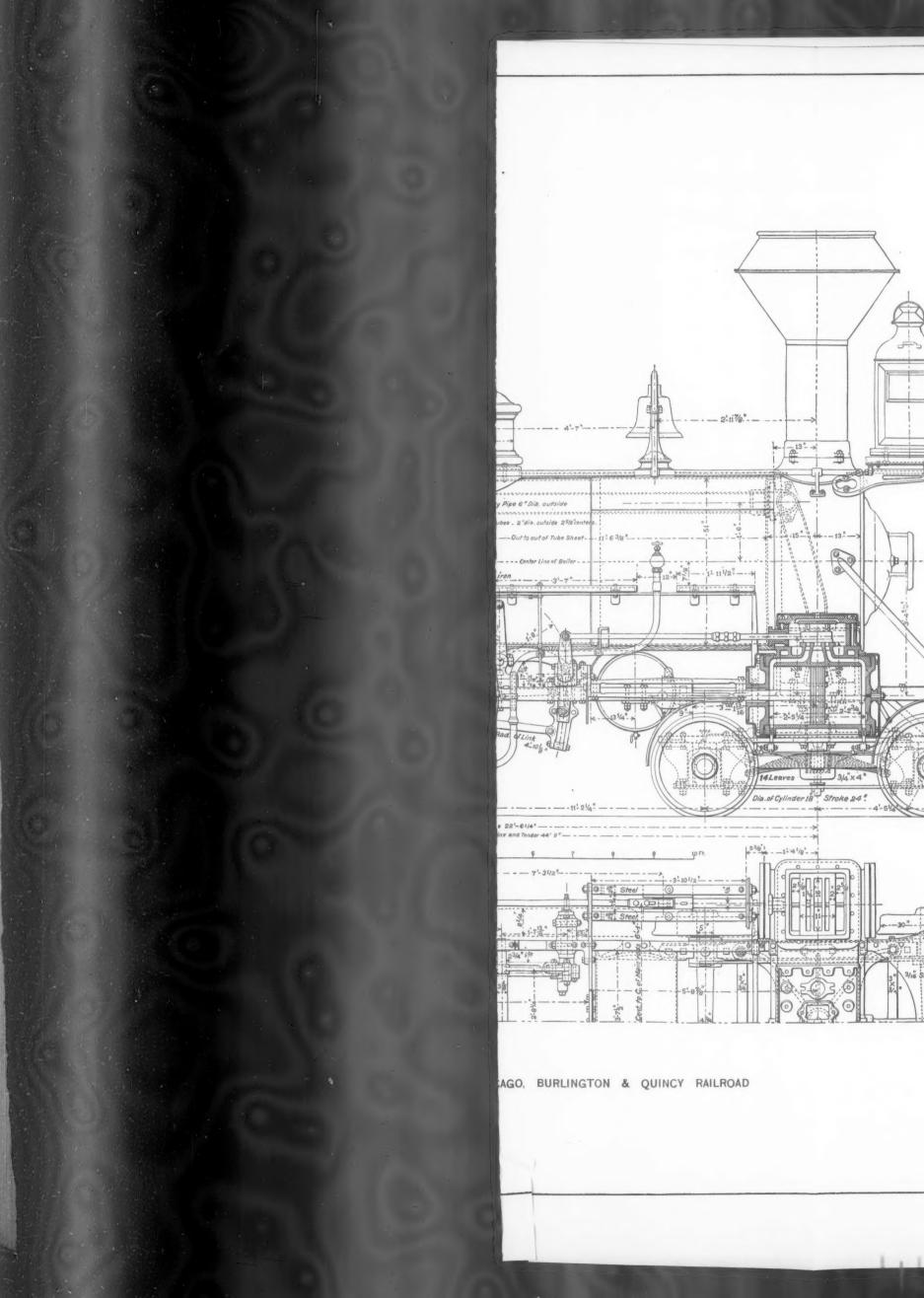
The earnings of the Manitoba were the smallest since 1881 and only half as great as in 1882, the length of road worked meanwhile having increased from 912 to 1,471 miles, so that the earnings per mile decreased from \$943 in 1882 to \$292. But the earnings were phenomenally large in 1882, and though they were positively small last May, they were not very much less than those of some much older roads, the Milwaukee & St. Paul earning but \$358 per mile last May. Down to the end of April the Manitoba had had an average monthly decrease of \$22,360, or 5.2 per cent.

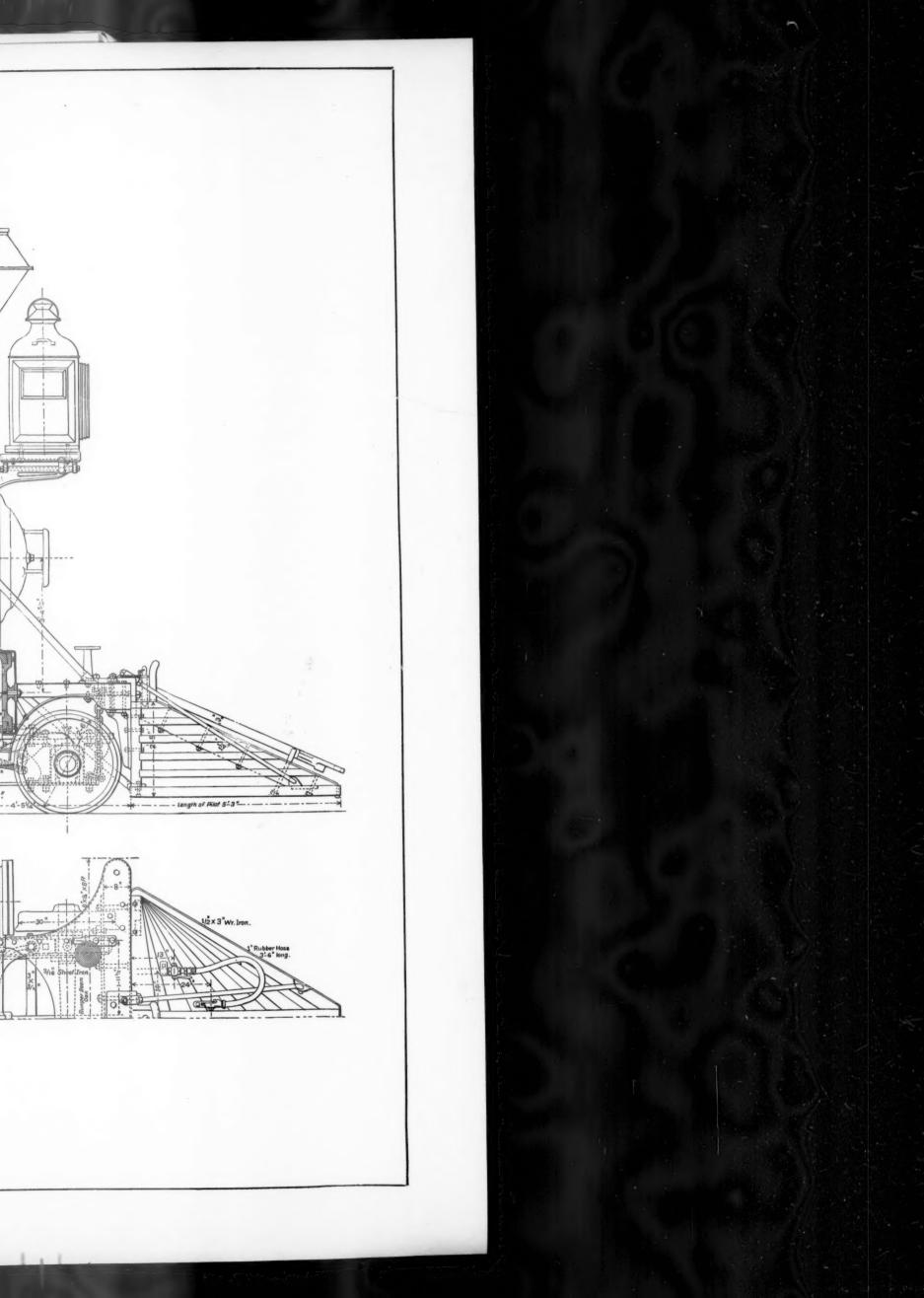
The St. Paul & Duluth had larger earnings this year than ever before, the gain over last year being \$29,.577, or 35½ per cent., while for the four months previous to May the average monthly gain had been \$12,252, or 182 per cent. The large stocks of wheat and flour at Minneapolis and the higher rail rates to the East from Chicago have favored shipments over this road to Lake Superior.

Taking these four roads northwest of St. Paul together, they have a gain of 11½ per cent, over last year, and all but the Manitoba seem to be doing well. In connection with these it should be noted that the Oregon Railway & Navigation Co., which has 657 miles of railroad in Oregon and Washington, earned



HEAVY PASSENGER LOCOMOTIVE, CHICAGO,







\$464,000 last May, which is \$124,539 (36 per cent.) more than last year. There are no reports for previous

West and northwest of Chicago there are reports for May as follows:

St. P. & O. S. & W.... lowa en. in lowa. & Alton. & San F... Ark. & T... & R. G... 93,271 488,432 593,922 626.018

The Milwaukee & St. Paul earned less last May than in any other since 1882, and \$107,281 (6 per cent.) less than last year. For the four months previous the average monthly decrease had been but \$15,556, or 0.9 per cent., but in April the decrease was much larger than in May, namely, \$163,263, or 81 per cent. The Northwestern has an increase of \$92,644 over last year, yet earned a little less than in any other year since 1881. In April and the four months then ending, it had had a slight decrease, so that for the entire five months it has had an increase of \$76,022 (0.9 per cent.), against the St. Paul's decrease of \$169,457 (2 per cent.). The St. Paul & Omaha has a decrease of 41 per cent., while, for the four months previous, it had had the important increase of 104 per cent.

The Iowa lines of the Illinois Central have an increase of nearly 8 per cent. over last year, against 13 for the first four months of the year. The St. Louis & San Francisco earned more than in any other May, and \$44,890 (14 per cent.) more than last year, having had a decrease of \$53,933 (4 per cent.) during the four months previous. The Chicago & Alton had had an average monthly loss of \$43,065 (7 per cent.) before May this year, while the decrease is but \$9,813 (15 per cent.) in May.

The Denver & Rio Grande has an increase of \$28,189 over last year in May, which goes to increase the average gain of \$17,561 per month in the four months

North of the Ohio and east of St. Louis and Chicage earnings have been !

Ill, Cen.;	1882.	1883.	1884.	1885.	1886.
In Ili. & S. Div.	748,004	748,803	788,809	818,204	786,743
St. L., A. & T. H.:					
Main Liue	102.923	101,731	104,847	78,931	98,322
Believille Line.	70,947	60,914	55,416	47,797	51,515
Chie. & E. 111	146,779	128,679	112,309	126,510	116,920
Ev. & T. H:	61.865	55,920	60,018	60,761	58,405
Cln., J. St. & C	196,215	205,540	205, 195	192,175	190,502
C. & W. Mich	161,782	138,964	139,369	111,850	111,168
Det., L & N	184,576	134,966		98,831	102,685
Flint & P. M	175,113	229,664	223,298	173,170	195,841
Wabash 1	004 RR4	1 019 048	1 900 090	807 DR4	050 949

The Illinois Central has a decrease of \$29,361 in May, against a decrease of \$78,566 in April and an average monthly decrease of \$11,157 (12 per cent.) for the three months previous, so there is a change for the better. Both the St. Louis & Terre Haute roads had gains over last year, and that of the Main line is very large (25 per cent.). The Eastern Illinois, which had gained an average of \$13,670 per month until May, in May lost \$9,590.

The Cincinnati, Indianapolis, St. Louis & Chicago earned less last month than in any previous May here recorded, while until May it had gained 6 per cent-this year. Two of the three Michigan roads have gains over last year, while only one gained in April.

The Wabash mileage worked before 1885 was so very much larger than now that the comparison has not much significance. Last year the roads then worked by the Wabash were reported to have earned \$1,069,075, by which it appears that the roads dropped since then earned \$241,091, which indicates that the earnings of the system worked now were larger this year than in any other of the five. Certainly the increase of 16 per cent. over last year, at a time when other roads gain little, or lose is remarkable.

In the South there are reports as follows:

1882. 1883. 1884. 1885. 1886. bille & O....\$134,378 \$141.976 \$142,774 \$122,653 \$135,365 uis. & Nash. 958,130 1,062,348 1,156,109 1,102,414 1,027,810

The Mobile & Ohio has a gain in May over last year, but a loss compared with the two years previous. The gain in May was \$12,712, or 101 per cent., against an average monthly loss of \$24,563, or 141 per cent., for previous months of the year-a decidedly favorable turn. The decrease of the Louisville & Nashville in May was \$74,604 (62 per cent.), while for the four months previous the average decrease had been \$131, 870, or 11 per cent.

The Norfolk & Western has made a report, but it does not include all its earnings, so that comparisons with previous years would be deceptive and less favorable than the truth, The earnings reported are \$208,425 this year, against \$179,247 from the same sources last year, an increase of 16 per cent. The earnings from all sources last year were \$192,827.

In the East these roads have reported May earnings Buff., R. & P. 1882. 1883. 1884. 1885. 1886. 887,902 \$51,702. Long I..... 180,712 204,286 218,302 218,274 229,008 The great decrease of the Rochester & Pittsburgh

shows the effect of strikes in the coal mines, which | Chicago roads, we find their percentages of increase afford this road most of its freight. It had gained 51 per cent. this year until May, when the decrease exceeded the increase of the previous four months. The Long Island earned more in May than ever before, the gain being similar to that in previous months of this year.

Trunk Line Shipments from New York.

The sudden and large decrease of through shipments from New York by the trunk lines in the first two weeks of May which we noticed two weeks ago proved to be only temporary, the shipments in the last two weeks of the month having been much larger and not far from the average in April, and not seriously below the average weekly shipments in May last year and the year before. The New York ship ments in each of the seven weeks ending May 29 have

Apr. 17. Apr. 24. May 1. May 8. 22,700 21,304 18,523 16,869 May 15. May 22. May 29 17,211 20,477 21,539 The average weekly shipments in May were 22,389 tons in 1885, and 22,270 in 1884. The falling off in the last week of April and the first two weeks of May was probably due to the disturbance and hesitation in trade accompanying the labor movements, the shipments in the first week of May being 211 per cent. less than in the last week and 24 per cent. less than the May average last year.

For the entire month of May the New York shipments have been :

Year.	Tops. Year.	Tons.
1879	62,024 1883	80,284
1880	. 78,350 1884	98,352
1881	. 83,970 1885	. 99,154
1882	.135,030 1886	79,942

Thus the May shipments were smaller this year than in any other since 1880. It is not so surprising that they should be a fifth less than last year, because the rates were 80 per cent. lower then than now, though there has been no such decrease in previous months of this year, with the same difference; but the decrease from 1884 is nearly as great, and rates then were the same as now.

For the five months ending with May the New York shipments have been :

Jan.	Feb.	March.	April.	Mav.	5 mos.
1880 85,988	90,498	98,231	84,500	78,350	437,567
1881 79,402	81.375	106,673	99,057	83,970	450,477
1882 109,742	120,089	167,615	161,492	135,030	693,968
1883 81,227	78,737	102,629	86,007	80,284	428,955
1884 94,696	96,940	108,436	108,632	98.352	507,055
1885 81,775	84.768	107.032	104,722	99.154	477,451
1886 81 120	84.976	104.845	92.860	79.942	443.743

The shipments for the entire five months this year are but 7 per cent. less than last year, and are more than in 1883, while the decrease from 1884 is 12 per cent. The extraordinary shipments of 1882 were taken at extremely low rates. But it is noticeable that in the first two months of this year the shipments were as large as last year; in March they were but 2 per less, in April 12 per cent. less, while cent. May they were 19 per cent. less, the decrease being 19,212 tons in May against 14,496 tons in the previous four months. It is not so much that the business of the year as a whole is unsatisfactory as that it has taken a decidedly downward turn in the last two months. In every year shipments have been less in May than in April, but not usually so much less as this year.

It is possible that the other Eastern cities will not show such a decrease as New York has suffered, and it is certain that their shipments were not noticeably than usual in the first two weeks of May, when the New York shipments were small. And, in-deed, in the previous months of the year, they held their own better than New York, having, fact, shipped considerably more than last year, due probably to larger imports of certain forms of iron which enter largely at Philadelphia and Balti-

But there are other indications that trade, which improved rapidly last fall and was satisfactory in winter, is not so good as it was. Nothing measures it so well as this record of west-bound shipments over the trunk lines, about three-fourths of which goes from New York.

The Rock Island's Last Year.

The Chicago, Rock Island & Pacific earnings and expenses for its fiscal year, ending March 31, were reported at its annual meeting last Wednesday. As the company makes no weekly or monthly reports of earnings, the statement has a special interest. Compared

Gross earnings \$12,004,348 Expenses 7,166,892	1884-85. \$12,206,911 7,160,394	Inc. on Dec. \$202.563 6,498	P. c. 1.7 0.9
Net earnings \$4,837,456	\$5,046,517	\$209,061	41

Thus the changes are small, but the net earnings have decreased 4 per cent. Comparing it with other further south, not to say those of the railroads east of

or decrease in gross and net earnings for the calendar year 1885, compared with the previous year:

C. & A. C. & N. W. C., M. & St. P. -8.2 + 3.5 + 4.1 -5.5 + 10.4 + 4.8 $\begin{array}{c} {\rm C.,\,B.\,\&\,Q.} \\ {\rm Gross..} \ +4.2 \\ {\rm Net} \ ... \ +1.2 \end{array}$

Thus the Rock Island has not done as well as any of the other roads except the Chicago & Alton, but considerably better than that. The Rock Island and the Chicago & Alton are alike in having no lines west of the Missouri, but the Rock Island is not exclusively a "Southwestern" road like the Chicago & Alton, for besides its Council Bluffs line, it controls a large system to the Northwest-to Minneapolis, and through western Minnesota and into Dakota-being in that more like the Northwestern.

The gross and net earnings and working expenses of the Rock Island for the last seven fiscal years ending March 31 have been:

Year to			
March 31.	Gross earnings.	Expenses.	Net earnings.
1880	\$11,061,662	\$5,796.546	\$5,265,116
1881	11,956,908	6,630,155	5,326,753
1882	13,266,643	7,322,862	5 943,781
	12,189.903	7,109,816	5,080.087
	12,535,515	7,298,002	5,237,513
1885	12,206,911	7,160,394	5.046,517
1486	12.004.348	7.166.892	4.837.456

Thus the gross earnings last year were the smallest for five years and the net earnings were the smallest of the seven years; they were, however, 114 per cent. more than in 1879, and more than in any previous

Notwithstanding the decrease in net earnings the company's profits over fixed charges last year were at the rate of \$8.26 per share of stock, there having b a surplus of \$539,230 after paying 7 per cent. This profit per share has been:

1880-81. 1881-82. 1882-83. \$10.83 \$12.57 \$10.10 1883-84. 1884-85. 1885-86 \$10.07 \$9.00 \$8.26 In 1880, when the stock was but half the present amount, the profit per share was \$19.33. The company has added very little to the mileage which it works or to its debt, and its interest charges are among the lightest in the country, requiring even last year only 28 per cent. of its net earnings. It has largely increased the mileage of railroads which it controls, through the Burlington, Cedar Rapids & Northern and the Minneapolis & St. and from these it increased its funded debt \$1,470,000 last year. They have doubtless brought it a good deal of traffic, but not much profit so far, though we cannot say that its net earnings would not have decreased without them considerably more than they have with them. The Rock Island has suffered like the other old railroads in its territory by the multiplication of competing lines. It is a pretty healthy sufferer, however, as the profit of \$8.26 per share in this worst of recent years sufficiently indicates.

Besides the net earnings the company has had net receipts from its Land Department as follows:

1880-81. 1881-82. 1882-83. 1883-84. 1884-85. 1885-86. \$490,000 \$650,000 \$560,000 \$470,000 \$330,000 \$310,000 which are included in calculating the profits per share

The disposition of the net income (net earnings plus net income from land) has been:

Year.	Income.	Interest and rents.	Dividends.	Better- ments	Surplus.
1880-81.,	\$5,816,753	\$1,271,837	\$2,202,890	\$2,285,000	
1881-82	6,593,780	1,402,910	2,937,186	2,215,000	38,684
1882-83	5,640,086	1,401,958	2,937,186	1,300,000	943
1883-84.	5,707,512	1.481,255	2,937,186	1,200,000	89,071
1884-85.	5.376,587	1.592,215	2.937,186	750,000	97,186
1885_86		1.680.029	2,937,186	463,000	67.024

What we have called "betterments" here, charged in the report as "additions and improvements," really part of the stockholders' profits, as well as the surplus. It appears that these betterments during the past six years have cost \$8,213,000. These undivided profits expended to improve the property have not, we see, resulted in increasing its profits, and have not prevented their decrease.

The decrease in the gross earnings of this road last year was due entirely to a falling off in its freight traffic, there having been an increase of 4 per cent. in its passenger earnings and an increase of 12 per cent. in its miscellaneous earnings. But the freight earnings fell off 51 per cent in spite of an increase in the average rate from 1.04 to 1.07 cents per ton per mile, owing to a decrease of nearly 8 per cent. in the traf-For seven years the traffic has been, in millions of passenger and ton-miles.

-Year to March 31. 1880, 1881, 1882, 1883, 1884, 1885, 82.6 93.8 1139 133.1 128.8 122.6 686.5 712.4 756.1 677.7 734.6 780.9 Last year's passenger traffic has been exceeded only in 1882-83, but the freight traffic was less than in 1882 and 1884 as well as last year. The average rates have not changed very greatly for a few years past. The freight rate of this road is lower than that of any west of Chicago, with perhaps one exception, but t is much higher than that of railroads crossing Illinois Chicago. The average rates per passenger and per ton per mile have been, in cents:

1880, 1881, 1882, 1883, 1884, 1885, 1886, Pass.-mile. 281 2.67 2.51 2.60 2.57 2.466 2.42 Ton-mile 1.21 1.22 1.28 1.17 1.10 1040 1.07

This company this year begins a system west of the Missouri River in Nebraska and Kansas, which for a considerable distance must be painfully near roads already built, the eastern halves of these states being well provided with railroads. Heretofore no Chicago railroad has undertaken to build feeders in Kansas, and the Missouri River from Atchison to Kansas City was a well defined boundary between railroad systems, though further north two companies have crossed it and occupy Nebraska north and south of the Platte with their own systems. If the Atchison builds a line to Chicago, as it seems likely to do, it will probably take from most of the Chicago-Missouri River roads more than they can gain by making lines of their own in Kansas.

The 79 railroads reporting last year had a decrease from 1884 of \$2,095,761, and the 73 reporting in 1884 had (with an increase of 8.7 per cent. in mileage) an increase over 1883 of \$2,657,124. Earnings per mile increased 1½ per cent. from 1883 to 1884, fell .9.6 per cent. from 1884 to 1885, and have fallen further, 0.2 per cent., this year.

The results in the several months of this year have been:

So that April compares more unfavorably with last year than any other except January.

This is due largely to the Eastern railroads. These reported a gain of 6.4 per cent. in January, of 12.1 per cent. in February, and of 10.5 per cent. in March, but only 2.6 per cent in April. Yet April was a very unfavorable month for them last year, and the ten Eastern roads which have reported every year have earned in the aggregate in April:

1883, 1884, 1885, 1886, \$9,919,409 \$10,899,825 \$9,891,397 \$10,180,504

In 1883 the Reading did not include the Central, of New Jersey, which probably earned nearly a million of dollars. Thus these roads, which profit most by

of dollars. Thus these roads, which profit most by manufacturing activity and the advance in through rates, and had made large gains over last year in every preceding month of this year, gained but 3 per cent. in April, and earnings 6½ per cent. less than in 1884 or 1883 (allowing for the Central, of New Jersey). This is one more sign that the condition of business, which had been improving decidedly, changed for the worse after March.

On the other hand, the Southern railroads did a better business in April than in some other months, reporting in the aggregate a decrease from last year of 10.7 per cent. in January, 2.2 in February, 1.1 in March and 1.7 in April—small changes except in January.

The railroads in the territory north of the Ohio River, so far as they report, had shown considerable gains this year, like the Eastern roads, and for similar reasons. They gained 8.1 per cent. in January, 12.8 in February, but only 0.1 per cent in March; in April they gained 6.9 per cent.—more than the Eastern roads.

West and northwest of Chicago the railroads suffered a decrease of 18.6 per cent. in January (blockades), then gained 12.4 per cent. in February, lost 5.2 in March, and lost 3.8 per cent. in April. Thus it is the Eastern roads only that show a considerable change in April.

The corn movement this spring has not been as great as was to be expected from the extent of the crop. During May (the four weeks to May 29) the total receipts at the Northwestern markets for four years have been:

1883. 1884. 1885. 1886. 6,880,403 4,005,217 6,093,146 5,063,351 For what we may call the corn year, beginning with December, the Northwestern receipts have been:

 1883.
 1884.
 1885.
 1886.

 55,202,455
 50,207,261
 52,669,177
 46,373,284

 while the crops from which these receipts came were:

 1882.
 1883.
 1884.
 1885.

 1,617,000,000
 1,551,100,000
 1,795,500,000
 1,936,200,000

So that with the immeuse increase of 385,000,000 (25 per cent.) in production in two years, there has been a falling-off of 7½ per cent. in the Northwestern receipts.

The receipts at the Atlantic seaboard, however, make a better showing, having been:

1883. 1884. 1885. 1886. 54,965,956 50,701,714 64,124,318 73,818,43

showing a gain this year of 15 per cent. over last year, 45½ per cent. over 1884, and 33 per cent. over 1883.

This shows that the proportion of the corn which does not come by way of the Northwestern markets has been much larger this year than in any of the three years previous. In 1883 and 1884 the Northwestern receipts were very nearly the same in quantity as the Atlantic receipts; in 1885 the Atlantic receipts were the larger by 11,425,000 and this year by 27,445,000 bushels.

This is probably due to the large crops in Illinois, Indiana and Ohio, whose shipments only to a small extent go by way of any of the reporting markets, and which are better able than the country further west to supply the Eastern and foreign demand, because they are nearer the market and in the country which has the benefit of the low trunk-line rates. The natural course, it would appear, is for the country further west to feed its corn rather than sell it, and since in spite of enormously increased crops in Kansas, Nebraska, Iowa and Missouri the receipts at Chicago, Peoria, etc., have fallen off, it would appear that this course has been taken to a greater extent than heretofore, for the production of these four states has been as follows:

1882. 1883. 1884. 1885.
572,455,400 606,363,800 741,050,000 727,173,000
While the production of these states has increased 155 millions (27 per cent.) in three years and 122 millions (20 per cent.) in two years, the receipts of the markets to which most of the corn goes which they ship to the East at all have fallen off, we have seen, 9 millions (16 per cent.) and 4,000,000 (8 per cent.) respectively. They ship a great deal of corn to the states next east of them, however, farmers in Illinois, etc., buying corn from Kansas and Nebraska to feed stock, just as New York and New England farmers do. A very large part of this interior movement escapes record entirely, but there can be no doubt that it forms a larger proportion of the

It will be seen by the announcement in another column that the report of the Executive Committee of the Master Car-Builders' Association narrows the carcoupler issue somewhat, so far as it depends on the committee, but not very much. Of the twelve couplers, six of each type, recommended for further trial in September last at Buffalo, seven are recommended for further trial and the other five dropped out, as follows:

whole movement year after year.

LINK TYPE: McKeen, Archer, Marks and Ames recommended for further trial. Perry and Gifford dropped out.

VERTICAL PLANE: Dowling, Thurmond and Janney recommended. Hein, Cowell and Titus & Bossinger dropped out.

The most vital question, a selection between the types, the committee still postpones all action on, but even the action taken, if it were only more binding on all parties, would certainly narrow the issue very much. Every one of the couplers still recommended will, or can readily be made to work very nicely with the others named of its own type, the Dowling, Thurmond and Janney, in fact, being practically the same coupler, so far as their outward working is concerned, and differing only in their internal structure. Nothing is to be gained particularly by cutting down the list of each type any shorter. All that remains is to bury one of the types.

Lake and Rail Shipments of Grain from Chicago.

The low rail rates of last year came nearer destroying the lake grain movement than anything has ever done before. The total grain shipments from Chicago were but 11% million bushels less than in 1883, but the lake shipments were 26 millions less, and the total lake shipments were the smallest since 1870, and nearly as small as then, when the total Chicago grain shipments were but 46 millions, against 112 millions last year. The rail shipments of grain from Chicago were larger last year than ever before—only 7 per cent. more than in 1884, when rates also were very low, and 23 per cent. more than in 1883, when there was some profit in the rates received nearly all the time. There have been but three years when more than half the Chicago shipments of grain have gone by rail, 1881 (52.8 per cent.), 1884 (59.9) and 1886 (67.2). During the first year of a great diversion from the vessels by a railroad war, 1876, the railroads carried 46.7 per cent. of the shipments.

ried 46.7 per cent. of the shipments.

The lake holds its own verywell in flour shipments] from Chicago, and did last year even, when the vessels took 12½ per cent. of the total, against 15.8 the year before, and an average of 12.8 per cent. for the last ten years.

The Chicago shipments of grain by lake and by rail in each of the last eight years have been, in *millions* of bushels:

1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, Lake... 67,9 62,1 91,8 56,7 50,8 62,6 46,9 36,7 Rail... 38,3 49,5 49,7 63,4 40,8 61,1 70,1 75,3 Total... 106,2 111,6 141,5 120,1 97,6 123,7 117,0 112,0 P. c. byrail. 36,1 44,3 35,2 52,8 47,9 49,4 59,9 67,2 There is no indication that the railroads are likely to de-

stroy the lake grain business. In almost every year when they have had a very large part of it, they have carried it much of the time for cost or less, and we may be sure that they will not do this permanently. When few of the shipments are for export, as is likely to be the case when crops are light, then the railroads have an advantage, but then the whole movement is likely to be light.

The Chicago shipments do not now cover so large a proportion of the total lake shipments of grain as formerly, because Duluth has become an important shipper, and ships exclusively by lake. The Lake Superior shipments are likely to increase, too, but so far they are wheat exclusively, which is not likely ever to make so large a figure in the grain shipments as corn.

It is noticeable that oats avoid the lake much more than corn or wheat. Last year only 4% per cent. of the Chicago shipments of oats went by lake, against 39 per cent. of the wheat and 50 per cent. of the corn. Even in 1893, when 50.6 per cent. of the total grain shipments went by lake, less than 16 per cent. of the oats went that way, against 60½ per cent. of the wheat and 68½ per cent. of the corn. This is due probably to the bulkiness of the oats, which weigh but 32 lbs. per bushel (corn 56 and wheat 60 lbs.), so that a vessel cannot take a full cargo in weight of them, while the cars can, or at least charge no more per pound for them than for other grain. The same is seen on the canal; the boats prefer other grain and the cars carry most of the oats.

In 1884, only about one-seventh of the receipts of oats at New York were by canal, and out of 36,000,000 of all grains brought to tide-water by it, only 2,815,000 bushels were oats. At this time the canal rate is $3\frac{1}{4}$ cents a bushel for oats, $3\frac{3}{4}$ for corn and $4\frac{1}{2}$ for wheat from Buffalo to New York, which is at the rate of 10 cents per 100 lbs. for oats, 6.7 for corn and 7.5 for wheat.

Moreover, very few oats are exported, and a larger proportion of the total oats shipments than of the corn and wheat is consumed in the interior—a very large part west of Buffalo itself.

Chicago, Burlington & Quincy Earnings in April.

Though compared with last year, this road had a decrease in both gross and net earnings in April, the result cannot be called very unfavorable, for both gross and net earnings were larger than in April of any other year. For seven successive years the gross and net earnings and working expenses in April have been:

Year. 1880			 						Gross earnings. \$1,489,894	Expenses, \$796,072	Net earnings, \$793.822
									1.574.371	875,313	699,058
1882								ì	1,530,838	823,146	707.692
1883			 						1.824,130	1.166,612	657,518
1884	 		 			 0 1	 		1.832,451	1.187.248	645,203
1885	 								2,065,069	1.195.609	869,460
1886	 		 						1,952,740	1,139,533	813,207

Compared with last year the decreases are

Compared with may ye	car the decre	ateca atte.	
Amount	Gross earnings. \$112.329	Expenses. \$56,076	Net earnings \$56,253
Per cent		4.7	6.5

The working expenses, which have not been reduced heretofore on this road as they have been on many other, were smaller this year in April than in any other since 1882.

Comparing with other great Chicago roads, we find that the Northwestern earned 1.8 per cent. less than last year in April, the Milwaukee & 8t. Paul 8.5 per cent., and the Chicago & Alton 3.1 per cent. less; but all these railreads had smaller April earnings last year than the year before, while the Burlington had much larger ones, and comparing this year with 1884, we find a gain of 6½ per cent. on the Burlington, against decreases of 4½ per cent. on the Northwestern, 9½ on the Milwaukee & St. Paul, and 5½ on the Chicago & Alton.

For the four months ending with April, the mileage, earnings and expenses of the road for seven years have been:

	Gross		Net
Year, M	iles. earnings.	Expenses.	earnings.
1880 2.	597 \$6,067,02	2 \$2,923,269	\$3,143,753
1881 2.	692 5,335,289	3,052,062	2,283,227
1882 2.	960 6,213,189	3,486,567	2,726,622
18833.	231 7,457,41	3,902,312	3,555,103
1884 3,	335 7,557,713	3 4,234,113	3,323,600
18853,		8 4,695,959	3,602,619
1886	646 7,393,149	9 4,273,723	3,119,426

Thus the gross earnings this year were the smallest since 1882, the working expenses the smallest since 1883, and the net earnings smaller than in 1880, as well as less than in any of the three years 1883, 1884 and 1885. Compared with last year the decreases are:

	Gross	_	Net
Amount	earnings. \$995,430 10.9	Expenses. \$412,237 8.8	\$493.193 13.6

The decrease in April was proportionally much less than in the three months previous—in net earnings, 6½ per cent. in April against 19 in the three months ending with March. The decrease for the four months is equal to about 64 cents per share of stock.

The percentage of decrease in the gross earnings of the principal Chicago railroads for the four months ending with April has been:

C., M. & St. P. C. & N. W. C., B. & Q. C. & A. Ill. Cen. 0.9 0.2 10.9 7.0 4.6

All show a decrease, trifling on the two great northern systems, but considerable on the others, and largest on the Burlington. The net earnings per mile of road of the latter have been:

| 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1880. | \$1,210 | \$997 | \$1,039 | \$356 |
| The decrease in these is considerable, but less than on most Chicago roads, especially those which have added greatly to

their mileage.

The Burlington Freight Brake Tests.

The forthcoming brake tests at Burlington, Ia., will be the forthcoming brake tests at Burington, Ia., will be held under the direction of a committee of the Master Car-Builders' Association, and will be the most complete and elaborate brake trials ever held. Mr. Godfrey W. Rhodes, Superintendent of Motive Power of the Chicago, Burlington & Quincy, is the Chairman of the committee, and the trials will take place on that road. The trials are expected to extend over some four weeks. Six competitors have entered and the trials for each brake are expected to occupy four days. Each brake will make some 76 stops under the different conditions, which have been fully stated already in the Railroad Gazette.*

The whole plan of proceedings at the trial has been carefully mapped out, and a book containing full instructions as to the position and duties of all concerned in carrying out the

star will be issued shortly.

One track about six miles in length will be reserved wholly for the trials. Each train in making a trip will make four stops on this length, two on the level and two on a down grade of about 50 ft. per mile. The throttle will be shut and the brake applied at points fixed upon at each stop, and stakes driven into the ground at every 50 ft. will enable the length of the stop to be readily found by actual measurement. In addition, recording apparatus in a dynamometer car will record on paper the distance run in making the stops, the

speed at every instant and the strain on the draw-bars.
Only duly authorized persons will be allowed to ride on the trains, including the three representatives of the brake being

tested, and one representative of each of the other brakes.

Five persons will be stationed on the engine, which will be

connected to the dynamometer by telephone.

The train crew will consist of two conductors and six

Four persons will be stationed in the dynamometer car, which will be attached to the engine. In addition, four duly authorized persons can also ride in the car.

An empty car, with recording apparatus, will also be placed in the centre of each train, and observers stationed here will keep the records. Another recording instrument will be ed in the rear of the train.

In all 20 persons will be stationed on each train in the fulfillment of certain clearly defined duties, and 27 other persons

will be authorized to ride on the train.

The track will be kept clear and a convenient place oppo site the most interesting stop (that at high speed down a grade) will be provided for spectators.

A Western Union operator will be on the ground and be

prepared to accept messages for all points.

Locomotive Axles

The best book to study on the problem of designing durable and trustworthy mechanical structures is a collection of worn out and broken parts. We there learn the location of the weak point or points, for it may chance that like Aveling's first traction engines, to use the words of their inventor, "They hadn't a weak point; they just broke everywhere." In this case, however, a constant process of strengthening the broken and worn parts gradually produced an admirable machine, strong and powerful, but which to the unaccustomed eye seems strangely proportioned, some parts apparently having a totally unnecessary amount of metal, while others by contrast appear very slight. The art of accurately calculating the strains on rapidly moving machinery is so intricate, and many of the factors which determine the amounts of those strains are so indeterminate, that the proportions of many parts must be guessed at or deduced from practical experience with similar machines. The latter is of course the safer guide, and the larger the experience and the more accurate and complete the records of that experience the better.

Unfortunately for progress, mankind is very reticent as to its failures, and railroads, following the universal law, do not proclaim all their accidents. Some useful lessons can be learned even from imperfect statistics; but it is to be re gretted that some uniform system of reporting accidents and breakages does not prevail throughout this country. In de-fault of such statistics we are often obliged to analyze those of the British Board of Trade, which, admirable and complete as they are, apply to a country with widely-different methods of railroad working. With this reservation, the following tables relating to the breakage of Iocomotive main

driving axles contain much suggestive matter.

The following tables, giving a summary of a Board of Trade Return, show the relative number of broken and defective iron and steel cranked and straight main driving-axles in Great Britain during the year 1883:

TABLE I.

DESCRIPTION.	Number in use.		Broken in running.		Taken out in shops, flawed.	
	Iron.	Steel.	Iron.	Steel.	Iron.	Steel.
Crank axles without				Per ct.		
hooped throws Crank axles with	2,867	4.733	31	0.9	6.0	3.8
hooped throws Straight axles, outside	4,121	1,222	0.85	0.9	7.7	0.7
connected	438	1,467	5.0	0.5	2.7	0.8
Total main driving axles	7,426	7,422	2.0	0.8	6.8	2.7
Total	14,	848	1	.4	4.	74

See Railroad Gazette May 7, 1886.

	Number in	No. broker wit		No. taken
	use.	Passenger trains.	Freight trains.	out in shops.
Crank axles Straight axles	12,943 1,905	70 10	108	680 24
Total	14,848	80	127	704

TABLE III.

	Percentage broken in running.	Percentage taken out in shops flawed.
Crank axles Straight axles		5.25 1.26

These tables show some rather surprising facts. In the first place, it appears from Table III. that comparing cranked with straight axles, a slightly smaller percentage of the forner break on the road.

As it is very generally supposed that a cranked axle is considerably weaker than a straight axle of approximately similar diameter, this conclusion seems to upset all preconceived ideas on the subject. The larger percentage of cranked axles removed for flaws shows, however, that this lessened percentage of actual fractures is entirely due to the great care exercised in detecting the incipient flaws.

Going into the matter a little deeper, we find from Table I, that the steel straight axles are superior to iron straight axles as regards hability to fracture in the proportion of 10 to 1. In other words, a road having 400 outside connected locomo-tives, half equipped with steel and half with iron axles, might expect 1 steel and 10 iron main driving-axles to break during the year. This more than bears out the views on the

Ing the year. Inis indice that been out the subject previously expressed in these columns.*

A further examination of Table I. shows that as regards fractures a steel straight axle is superior to any arrangement of cranked axle, iron or steel, with or without hooped throws. But an iron straight axle is actually inferior to any of the four styles of crank axle.

Hooping an iron crank axle seems materially to lessen the number of fractures, while hooping a steel crank axle seems to have no effect in diminishing the breakages, but makes a remarkable reduction in the number of flaws. A hooped steel cranked axle seems nearly twice as liable to fracture as a straight steel axle, but is slightly less liable to flaws.

Comparing iron with steel axles, it will be seen from Table I. that the latter have an unquestionable superiority all along the line. The hooped iron crank axle alone holds its ground ainst its steel competitor as regards fracture, but is beater 11 to 1 as regards flaws

It is often asserted that the shocks and side blows on the wheel flanges are the main cause of fractured axles. As the violence of these side blows evidently increases with the speed, axles should break more frequently in passenger than in freight service. But Table II. shows that the greater number of fractures occur in freight service, though in Great Britain the passenger and the freight train mileage are nearly equal. This shows pretty conclusively that speed is not the all important factor in breaking axles. The heavier work done by freight engines, and the higher average pressure of steam in their cylinders has probably a great deal to do with the greater number of breakages of axles in freight

The first Consolidation engine ever built was design is well known, by Mr. Alexander Mitchell, and was built for the Lehigh Valley Railroad by the Baldwin Locomotive Works. This engine has just been permanently retired from active service after a long and useful career of nearly 20

When new, the engine weighed in working order 85,720 when new, the engine weighed in working order \$5,720 lbs., and it was placed on the road in July, 1866. It continued in service until May, 1875; when a new boiler was put on, which was in use until May 1, 1886. The life of these boilers was shortened several years at least by unavoidable use of sulphur water, and the locomotive, owing to weakness of frames and pedestals, was abandoned May 1, 1886.

The service of the engine has been:

Mileage during 19 years 10 months...... Average mileage per annum.....

Over a grade of 96 ft. per mile this engine has drawn maximum train of 130 empty four-wheeled coal cars (442 gross tons), its usual train being 100 empty cars (340 gross

Over a grade of 135 ft, per mile, a maximum train of 35

paded four-wheeled cars (329 gross tons).

These performances are certainly very remarkable. Reck oning the weight of the tender at 60,000 lbs., the weight of the engine, tender and train would be 882,680 lbs., and the effect of gravity alone on the grade of 135 ft. per mile would be 22,569 lbs., or more than one fourth the weight of the entire engine. Assuming that the leading truck carried only 5,720 lbs., and that 80,000 lbs. were utilized for adhesive weight, the feat is still remarkable. The friction of the en gine and cars can have been hardly less than 5 lbs. per gross ton, and assuming this to be so, the gross tractive power would be no less than 24,500 lbs., or $_{3,26}$ of the weight on the drivers. A prominent firm of locomotive builders state in their catalogue that one of their Consolidation engines. having 85,000 lbs. on the drivers, will draw 275 gross ton

* See Railroad Gazette, page 94, Feb. 5, 1886.

of cars and lading up a similar grade (132 ft. per mile). This is an excellent piece of work. Making the same allowar is an excellent piece of work. Making the same allowances for weight of tender and friction of train, the gross resistance would be 21,200 lbs., or 4.18 of the adhesion weight, which seems to be pretty near the slipping point in some kinds of weather. It seems probable that when this max imum train was bauled on the Lehigh Valley, the tender was nearly empty and weighed less than has been assu explanation of this sort seems necessary to make the feat possible.

The Engineering and Mining Journal tempts us in a recent article to continue discussion as to the causes of the badness of modern rails. We have declined in another column to do so, but we may add a single fact: We happen to have in our office a sample, which we are assured is a fair one, from a large lot of rails from one of the two mills which the Journal asserts to enjoy a monopoly of single-heat rail rolling, and if all of its product is like this sample, as we know that a good deal of it has been, we sincerely hope it may long enjoy its monopoly. The fracture could hardly be a stronger evidence of a "mushy" and bad rail. Not only so, but any one who had even seen the fracture of a good steel rail would say at once, if he looked at this one, that a chief difficulty with it was that it had not been worked enough. It is ragged, irregular and spongy looking, with streaks all over it, clearly indicating the flowage lines of the metal under the rolls. No one of any experience at all in such matters would need to look at the top to be morally certain it was a very bad rail. There are, however, dingy spots all over it, indicating that the material may probably be bad also-and very probably tie material may probably be bud also—and very probably it is; but, to show that this is certainly not the chief difficulty, we have seen pieces of this same lot of rails which have been well worked under the blacksmith's hammer, and then broken. An entirely different fracture is obtained. Instead of the ragged, streaked, uneven fracture which before appeared, there is the clean, even, homo-geneous, silver-gray fracture so difficult to describe and so readily recognizable as that which good steel cught to have. Not only is the grain of the fracture different, but its entire character. The chisel has not cut a deep gouge in it, raising a corresponding ridge at each side, but has merely nicked ing a corresponding ridge at each side, but has merely incred it, and yet the fracture starts clean and sharp from the bottom of the nick instead of sprawling all over the rail on each side. The same tests we know to have given the same results with a number of other lots of very bad rails. In the face of such evidence it is perfectly idle for any one to claim that a leading factor in the inferiority of many modern rails is not the mechanical processes employed. A word more may be added:

The Journal states: "We believe it is established (italics ours) that newly rolled rails wear more rapidly than old rails, and that all rails wear more rapidly when first laid down than they do after having been in use for a short time." Unless the nature of rail-wear has changed in a remarkable way in a very short time, the last statement not only has not been established but cannot be established, for the direct con-trary;is true. No doubt it is true enough of many rails which get put in the track, for "after having been in use for a short time" they do not wear at all, being put away to restin the scrap heap. We remember having seen somewhere recently a statement palpably evolved from the writer's inner con-sciousness, that rails "of course" wore faster at first, but as a matter of fact they do not.

That such incidents as that of the Hawkesbury bridge letting would be more frequent than they are if foreign structures of magnitude were more frequently open to competition and adjudged with equal fairness is indicated in a measure by the statistics of the new Jumna Viaduct, on the new Cawnpore & Kalpi branch of the Indian Midland Railway, a structure very similar to the Hawkesbury, especially in the nature and depth of its foundations, but on a smaller scale, the depth of the foundations below the bed of the river being only 90 ft., against 120 to 130 ft. The other details of the two viaducts compare as follows:

	Jumna bridge.	Hawkesbury bridge.
Spans	10 of 250 ft.	7 of 415 ft.
Total length	2,500 ft.	2,905 ft.
	Double	
Piers	cylinders.	Caisson.
	27 ft diam.	24×52
Clear height above water	76 ft.	40 ft.
Total height of piers from bot-		
tom of foundation	166 ft.	210 ft.
Cost complete	\$1,650,000	\$1.589,220
Cost complete	(estimated)	(contract)

Adopting the rough method very often used for comparing uch structures, the area of the enclosing rectangle, the two structures compare as follows

Hawkesbury..........2,905 \times 200 (average) = 581.000 aq. fs. Jumna...........2,500 \times 166 = 415,000 $^{\circ}$ 16

From this it would appear that the Jumna structure is, roughly speaking, somewhat over 70 per cent. of the magnitude of the Hawkesbury Bridge, yet its cost is to be \$60,000 greater. There is, to be sure, a haul of some 700 miles inland to be considered in the one case and not in the other, but on the other hand a much larger proportion of the Jumna structure is above both land and water-a far more important consideration. By comparison with the Hawkesbury Bridge it would seem as if its cost should have been considerably under \$1,000,000. This structure, bowever, was not open to competition

An interesting feature of the work on the Jumna foundations, which are stated to be "well" foundations, whatever may be the precise meaning of that term, was that when difficulty was experienced in the sinking of the pier foundations on account of a well having got 8 ft. out of plumb, in going down 50 ft., a steady pull of 200 to 800 tons was brought to bear on the upper section of the well, and under

the continued strain thus applied the cylinder was gradually brought back to its proper position as the sinking progressed. The bridge, says the *Builder*, is expected to be open for traffic in about two years.

At the Railroad Congress held in Brussels last August, the officers who had officiated were instructed to make preparations. rations for a second Congress, and to report a plan for an nternational scientific association whose object shall be to promote progress in railroad affairs by congresses, conferences, publications and all other means, and especially by facilitating the intercourse of railroad managements with each other; provisionally it is to fulfill the functions of a bureau of technical railroad statistics. The gentlemen intrusted with this work have selected a

committee to take charge of the permanent organization, consisting of Mr. Fassiaux, General Secretary of the Belgian Department of Railroads, Posts and Telegraphs, President: Mr. Belpaire, Manager of the Belgian State Railroads; Mr. DeBruyn, President of the Belgian National Local Railroad Company; Mr. Auguste de Laveleye, engineer; Sir Andrew Fairbairn, M. P., Manager of the Great Northern Railway; Mr. Griolet, Manager of the Northern Railroad of France,

and Mr. Van Kerkwijk, Member of the Dutch Parliament. Mr. Kesteloot, Division Chief in the Belgian Department of Railroads, who was Secretary of the Congress, is Secretary of the Committee, and Mr. Holemans, Chief of one of the bureaux in the same department, is Treasurer. It has been decided that the expenses in excess of the 5,000 francs granted by the Belgian government shall be contributed by the rail roads joining the association in proportion to their mileage.

The committee is intrusted with: 1. The preparation of the regulations and programme for the next Railroad Congress. 2. Reports on the preparation, organization and man agement of railroad congresses in general. 8. A report or technical railroad statistics and the preparation of a form for such statistics. 4. Correspondence with rail-road managements for the purpose of agreeing upon the questions to be discussed a: the Congress. 5. Compilation of all information relating to the Congress and the formation of a consulting library. 6. Records of experiments made. 7. Report on the financial management of the Commission, to be submitted to the Congress. 8. The publication of a bul-letin which shall be the organ of the International Commission, which shall contain the preliminary reports of the next s, in the French language, to appear monthly or quarterly.

During the entire 18 weeks of this year down to May 8 which was before receipts by canal had begun, the total receipts of wheat at Atlantic ports were 3,892,292 bushels. ceipts of wheat at Atlantic ports were 3,892,292 bushels. During the next three weeks they were 5,457,425 bushels. And of the receipts of these last three weeks 3,913,750 bushels (71.7 per cent.) were at New York, and 598, 806 (10.9 per cent.) at Montreal, which alone receive from the lakes by water. There has been nothing like this for many years, even when rail rates were maintained in the winter and after navigation opened, but there has been good reason for it. There was an abundance of wheet at the places of communications. was an abundance of wheat at the places of consumption be fore winter set in, and the price was very low. If all the wheat in the world had been owned by one man, or by the whole body of consumers, probably the best thing that could have been done with our Northwestern stocks was just what was done, keep it where it was in store until it was wanted and until the cheapest route to market was open. This grain or its equivalent had to be held somewhere, and for the whole

world at large it was best that it should stay where it was.

There has been no such determination of other grains to the water route. During the time that 3,892,000 bushels of wheat were received at the Atlantic ports, about 31,800,000 bushels of corn and 28,011,000 bushels of oats were received by them, and these went largely to other ports than New York and very little to Montreal. Nor have the receipts of these much increased since the canals opened. The average weekly receipts of each grain for the 18 weeks before navi-

gation opened and for three weeks since have been:

Wheat. Corn. Oats, All grains,
Before May 9... 216,238 1,766,700 1,5:6,200 2,733,517
Since May 8... 1,819,142 1,174,108 490,828 2,944,037

Thus, though the weekly wheat receipts have averaged 8½ times as much since the opening as before, the corn and especially the oats receipts have been so much smaller that the average receipts of all grains have been less than 211,000 bushels, or 8 per cent., greater since the opening.

Further evidence of the special attraction the canal has for wheat this year is found in the grain shipments from Buffalo, which, for the five weeks the canal was open, down to May

By railBy canal	Other grain. 2,480,986 1,966,282	All grains, 3,688,428 7,669,578
Total	4,447,268	11,358,006

Thus while the canal took nearly five-sixths of the total shipments of wheat from Buffalo, it had much less than half the shipments of other grains. The railroads carried twice as much corn, oats, etc., as wheat, the canal three times

as much wheat as other grain.

In these Buffalo shipments another element than the relative cheapness of the route and imminence of the demand on the grain comes into play, and doubtless has a great influence.
That is, the shipments from Buffalo do not all go to the seaboard, but a large part of the shipments of corn, oats and batley, but very little wheat, goes to interior points in New York, New England, Pennsylvania and New Jersey for consumption, only a few of which are reached by the canal.

What little wheat has gone to the Northwestern markets this spring has been received chiefly at Duluth, which in

very week since March has received more than any other every week since March has received more than any other place, and in every week until the last week of May more than Chicago and Milwaukee together. After the middle of May, however, Milwaukee made great gains. For the seven weeks to May 15 its average weekly receipts had seven weeks to May 15 its average weeks receipts had been 58,000 bushels, against 72,600 at Chicago and 228,450 at Duluth, the latter receiving three-fourths more than Chicago and Milwaukee together. But in the third week of May the Milwaukee receipts rose to 138,846 bushels, against 202,479 at Duluth, and in the fourth week they were 255,728 bushels at Milwaukee and 285,936 at Duluth, the Chicago receipts decreasing meanwhile and being less than 60,000 bushels in eith That is, Milwaukee, which had been receiving but 741/2 per cent, less than Duluth for a long time, 80 per cent, less in the first week of May and 53 per cent, less in the second, in the third week received but 311/2 per cent. less and in the fourth week but 10½ per cent. le

This is probably due to the reduction of rates from St. Paul and Minneapolis to Lake Michigan ports, made to prevent the flour from going almost entirely to Lake Superior.

The flour receipts at Lake Superior ports are not reported, out, judging by the wheat movement-less likely than the dour to be affected by the reduction of rates—the rate of $7\frac{1}{2}$ cents from Minneapolis to Milwaukee and Chicago has been effective. It is noticeable, however, that Milwaukee alone, effective. and not Chicago, seems to have profited by it, so far as wheat is concerned. Flour receipts have increased at both, but not very largely, having been for the four weeks that the port of Duluth has been open:

Chicago	May 8, 53,322	May 15. 63,071 58,567	May 22. 65,732 54,631	May 29. 00,653 68,515
The two		121,638 v their	120,363	120,168 ere 211/

per cent, more than in the first week-not an important gain Lake rates have fallen to 21/4 cents a bushel for wheat and of for corn from Chicago to Buffalo, which is, however, higher than usual at this season, the rate having gone down to 1% cents in several seasons and to 1% in some. Duluth the rate is still 3½ cents. Canal rates have a fallen, quotations this week being 4½ cents a bushel for wh Canal rates have also

fallen, quotations this week being 4½ cents a bushel for wheat and 3½ for corn, which are near last year's rates. This makes the total cost, including Buffalo transfer, from Chicago to New York, about 8 cents a bushel for wheat and 6¾ for corn, against 15 and 14 cents by rail—which we should expect to prevent any through rail shipments from Chicago. Through rates of 8½ and 8½ cents for wheat from Duluth to Montreal are quoted, or about half a cent less than to New York. Rates on coal up the lakes are 60 cents to Chicago and 40 to Duluth convivalent to 18 and 12 cents per bushel of wheat. Some equivalent to 1.8 and 1.2 cents per bushel of wheat, grain vessels are offering themselves for the ore trade.

Statistics of the tonnage of ocean sailing and steam m chant vessels in all the countries which have any considerable number shows the total tonnage in 1885 and 1870 to have

Deen: 1885. Sail12,867,375 Steam10,269,504	1870.	Inc. or Dec.	P. c.
	16,042,498	— 3,175,123	19.8
	2,793,432	+ 7,476,072	267.6
Total 23 136 879	18.835.930	L 4 300 949	99.8

The steam tonnage is, of course, much more effective, ton for ton, than the sail, because it can make more voyages in the same time, so that the increase of 23 per cent. in the aggregate tonnage means probably an inc ent. in the amount of transportation which the world's fleets can effect.

The ocean tonnage of the United States is giv follows:

1885. 1870. Inc. or Dec. 2,138,880 2,400,607 — 261,727 545,187 513,792 + 31,395 which allowing for the greater capacity of the steam too nage indicates a small decrease in the amount of transportation by sea which our fleet can effect.

on by sea which our need can enece.

Were vessels for inland transportation by lake and river included, we should doubtless find a considerable reduction in the tonnage in this country, owing chiefly to the competi-tion of railroads with river steamboats. The lake fleet, which is enormous, is not so large in number as it used to be, but the tonnage is about as large as ever, and the capacity of it is much larger. Since 1870 propellers and large barges have taken the place of small sailing vessels in the grain and ore trade, and are much more economical. The lake grain movement is not so large as it used to be; but the ore and lumber shipments have greatly increased since 1870.

Record of New Railroad Construction

Information of the laying of track on new railroad lines is given in the current number of the Railroad Gazette

Atchison, Topeka & Santa Fe. - A branch is co from Independence, Kan., southwest to Havana, 19 miles. On the *Arkansas River & Western Branch* track is laid

On the Arkansos River & Western Branch track is laid from Hutchinson, Kan., west 29½ miles. Chicago, Burlington & Northern.—An increase of 46 miles of track at various points is reported. Sinnemahoning Valley.—Extended from Austin, Pa., west

o Costello, 4 miles.

Union Pacific.—A branch is completed from St. Paul,

Neb., northwest to Loup City, 40 miles.

Wilmington & Weldon.—On the Wilson Cut-off track is laid from Contentnea Bridge, N. C., southwest to Smithfield, 25 miles; from the Neuse River south 3 miles, and from Fayetteville to the Cape Fear River, 2 miles.

This is a total of 168½ miles on 5 lines, making in all 1,108

miles thus far reported for the current year. The new track: reported to the c sponding date for 15 years has been

Miles	Miles.	Miles.
18861,108	1881 1,754	1876687
1885635		
1884		
18831,830		
18823,677	1877583	18722,026

se figures include main track only, second or other additional tracks and sidings not being counted.

NEW PUBLICATIONS.

Investment Tables, issued by Spencer Trask & Co., bankers, of New York, is a very convenient little hand-book, showing what interest can be realized from investments in bonds bearing various rates of interest and having different periods to run. By its aid an investor can often avoid a long and intricate calculation, and can ascertain at once relative profit offered by different bonds at current

Electric Railways and the Electric Transmission of Po described in plain terms. By Robert Luce, A. M. Bos-W. J. Harris & Co.

ton. W. J. Harris & Co.

This little volume of 106 pages is not inaptly named. It gives a succinct history of the development of the dynamic uses of electricity from the beginning, in popular style but apparently with fairness and correctness. The enthusiasm of the writer leads him to imply that some of the more re-cent achievements in electricity are of more certain practical merit than has been proven, but this is a minor fault, because it is not likely to deceive any one into the belief that electric propulsion has made greater progress than it has—the facts are too readily accessible—while the great numbers of people who take enough in-terest in the efforts in this direction to be glad to have some short account of all that has been done to date written in uch plain terms that those who know nothing at all about the mechanical theory of electricity can readily follow it, will find here just what they desire. It begins from the very beginning, and gives a very good and fair idea of the pres and cons of the subject until it comes down to the very latest ents," all of which it seems over-ready to belie in implicitly.

TECHNICAL.

Locomotive Building.

Locomotive Building.

The Mason Machine Co. in Taunton, Mass., have received an order for 4 heavy passenger engines and 4 yard engines for the Boston & Maine road.

The New York, New Haven & Hartford shops in New Haven, Conn., have just completed a new passenger engine for the road.

The Boston & Albany shops in Springfield, Mass., have recently completed a new 8-wheel freight engine with 20 by 26 in. cylinders and driving wheels 54 in. in diameter.

The Illinois Central shops in Chicago have begun work on 10 Mogul freight engines, with 18 by 24 in. cylinders and 56½ in. driving wheels.

It is reported that the unfinished McQueen Locomotive Works in Schenectady, N. Y., have been sold to the Edison Electric Light Co., and that the buildings will be used as a factory by that company.

Bridge Notes.

Bridge Notes.

Bridge Notes.

Messrs. Sooysmith & Co., civil engineers, of New York and Chicago, have received the contract for the piers of the bridge over the Red River on the extension of the Gulf. Colorado & Santa Fe into the Indian Territory. The work consists of 5 masoury piers, two of which will rest on pneumatic caisson foundations.

The Keystone Bridge Co. in Pittsburgh has taken a contract to remove the Mexican government pavilion from the Exposition grounds at New Orleans to the City of Mexico, where it will be used for public purposes.

Iron and Steel.

Iron and Steel.

The Pioneer Mining & Manufacturing Co. has been organized, with a capital stock of \$1,000,000, to build a new blast furnace at Birmingham, Ala. Mr. Samuel Thomas, of Catasauqua, Pa., is President of the company, and among the directors are Messrs. Robert H. Sayre, E. W. Clark, F. A. Potts and E. D. Leisenring, gentlemen prominently connected with the iron interest of eastern Pennsylvania.

Walton Furnace at Max Meadows, in Wythe County, Va., has gone into blast.

Cherokee Furnace in Dade County, Ga., went into blast last week, having been thoroughly repaired.

The Brierfield Coal & Iron Co. has changed its furnace at Brierfield, Ala., which has been heretofore a charcoal furnace, to burn coke. The furnace will be shortly started up, using Cahaba coke, from the company's own ovens.

The Pennsylvania Steel Works at Steelton, Pa., have increase was made voluntarily and without any special request from the men.

from the men.

Park Brothers & Co., of the Black Diamond Steel Works, have increased the wages of all their employés 10 per cent., dating from May 15.

The Columbus Rolling Mill Co. has contracted for the erection at its mill in Columbus, O., of an open hearth steel plant having a capacity of 100 tons per day.

having a capacity of 100 tons per day.

Manufacturing and Business.

The Niles Tool Works in Hamilton, O., recently turned out a very large boring and turning machine, which can take in work from 14 to 20 ft. in diameter.

The Lebanon Manufacturing Co. at Lebanon, Pa., is building a new foundry 203 by 60 ft. and a new office building. When the new foundry is completed the old foundry will be converted into a machine shop.

The works of the Pennsylvania Bolt & Nut Co. in Lebanon, Pa., the largest of their kind in the country, were destroyed by fire June 8. Four large brick buildings were consumed with all their contents, embracing a large amount of finished stock and valuable machinery. The loss is about \$150,000, and is covered by insurance. About 350 bands are thrown out of work. The cause of the fire is unknown.

The Rail Market.

Steel Rails.—The demand is still active and a number of orders have been placed at prices ranging from \$34.50@\$35 per ton at Eastern mills. There is, it is reported, some disposition to accept slightly lower prices, in view of the possibility of importation of English rails.

Rail Fastenings.—A fair business is reported with quota-

tions unchanged at 2.40 cents per lb. for spikes in Pittsburgh, 2.75@3.10 for track-bolts and 1.65@1.80 for splice-bars. Old Rails.—The market for old iron rails is a little more active and several sales are reported at prices varying from \$19@\$21 per ton at tidewater, according to quality. Old steel rails are quoted at \$21@\$22 per ton in Pittsburgh.

Engineers' Club of Philadelphia.

At the regular meeting in Philadelphia, May 15, President Washington Jones occupied the chair; 28 members and 3

Washington Jones occupied the chair; so members and ovisitors present.

Mr. E. S. Hutchinson read a paper giving a résumé of the Report of the Hon. John Bigelow on the Panama Canal made to the New York Chamber of Commerce. After stating that the chambers of commerce of some European cities as well as that of New York were invited by Mr. De Lesseps to send delegates to assist at the inspection of the canal in February last he briefly described the work.

Dr. R. P. Robins, introduced by Mr. T. M. Cleemann, read an interesting account of the First Permanent Tramway in América, which was prejected by Mr. Thomas Leiper, of Delaware County, Pa., in 1809, for the transportation of stone.

stone.

Prof. L. M. Haupt exhibited an original drawing of Josiah White's, containing designs for Dams No. 3 and 4 on the Lehigh. They were built of round timbers, filled with rip-rap, and were each about 36 ft. high. Mr. White is known as the inventor of the earliest form of movable dam, known as the "Bear Trap," which he built at the mouth of the Lehigh, at Easton, in 1818.

Easton, in Prof. Ha Easton, in 1818.

Prof. Haupt also presented some extracts from a paper on the Philadelphia Traction Co.'s Lines by Mr. H. R. Stoops, wherein a comparison is made between the cable and horse systems of street railways, favorable to the latter. Remarks were made by Mr. Henry G. Morris on an Electric Motor Car, and by Mr. John T. Boyd on Traction Cables and Machinery.

The Secretary announced the death of a member of the Club, Mr. E. F. Loiseau, in Belgium.

The Arbel Wrought-Iron Wheel.

The Arbel Wrought-Iron Wheel.

The Arbel wrought-iron centres for steel-tired locomotive and car wheels have only recently been introduced in this country, although they are in almost exclusive use on the French railways and in considerable use in other European countries. Up to the beginning of 1884 over 22,000,000 lbs. of locomotive wheel centres, 8,000,000 lbs. of tenderwheel centres and 41,000,000 lbs. of car-wheel centres had been manufactured at the John Cockerill Works, Seraing, Belgium, who are represented in the United States by Messrs. C. G. Eckstein & Co., No. 32 Liberty street, New York. The locomotive drivers are balanced in a peculiarly neat way by a slight thickening of the felloe opposite the crank-pin hole. The homogenity of the metal, and perfect workmanship are indicated by the loud, clear and peculiarly musical note emitted when one of the spokes is tapped by a small hammer. A train equipped with these wheels has been running on the Pennsylvania Railroad for a number of years and the centres are apparently indestructible.

A Singular Boiler Explosion.

A Singular Boiler Explosion.

The Locomotive for June says: "An accident on the Texas & Pacific road at Iona station, 14 miles west of Fort Worth, Tex., March 19, resulted in the instant death of Engineer W. H. Metcalf and Fireman Dick Clark. The train was the through passenger from El Paso to St. Louis. The engineer was running at a slow rate when the pilot of the locomotive struck something, and the shock, throwing the fire-box out of position, caused the boiler to explode. Metcalf was hurled 60 ft. and Clark about 200 ft. back of the engine. Metcalf was instantly killed and Clark lived an hour. The explosion plowed out a huge hole beneath the engine, into which the locomotive and tender fell, completely wrecked."

This accident was noted in our record for March. The singular fact in the case is that the explosion plowed or dug out a hole in the ground under the engine, a circumstance which we have never seen recorded before in a boiler explosion. Dynamite or nitro-glycerine usually has that effect, but a less powerful explosive does not affect the ground below, the force of the explosion usually taking effect upward.

A Novel Express Engine.

A Novel Express Engine.

A Novel Express Engine.

A good example of recent locomotive practice is to be seen at the Edinburgh Exhibition in an express engine and tender exhibited by Messrs. Neilson & Co., of Glasgow. This engine has been built by this firm from their own designs for the Caledonian Railway, and is the first of this type of engine having inside cylinders, single driving wheels and four-wheel track in front. It is fitted with the ordinary link motion and Westinghouse brake on both engine and tender, also with somewhat of a novelty in the introduction of an airblast into the sand pipes for blowing the sand between the rails and the driving wheels, to increase the adhesion when necessary. The blast-pipe in the smoke-box is Messrs. Adams' patent "Vortex," and is designed with the object of increasing the draught through the lower tubes, and, in consequence, adding to the efficiency of the boiler. The contour and finish of the engine speak for themselves to practical men.

Deneral Railroad Mems.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

held as follows:

Gulf, Colorado & Santa Fe, special meeting, in Galveston,
Tex., June 14.

Nashville, Chattanooga & St. Louis, annual meeting in
Nashville, Tenn., Sept. 15. Transfer books close June 16.

Ogdensburg & Lake Champlain, annual meeting in Ogdensburg, N. Y., June 16.

Oregon Railway & Navigation Co., annual meeting, in
Portland, Oregon, June 21.

Oregon & Transcontinental Co., annual meeting in Portland, Oregon, June 21.

St. Paul & Duluth, annual meeting, in St. Paul, Minn.,
June 21.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Central, of Georgia, 2 per cent., semi-annual, payable

Morris & Essex (leased to Delaware, Lackawanna & Western), 3½ per cent., semi-anntal; payable July 1.

New York & Harlem (leased to New York Central & Hudson River), 4 per cent., semi-annual; payable July 1, to stockholders of record on June 15.

New York, New Haven & Hartford, 5 per cent., semi-annual, payable July 1, to stockholders of record on June 12.

Oregon Railway & Navigation Co., 1½ per cent., quarterly, payable July 1, to stockholders of record on June 10.

Railroad and Technical Conventions

Railroad s.nd Technical Conventions.

Meeting and conventions of railroad associations and technical societies will be held as follows:

The Master Mechanics' Association will hold its annual convention in Boston, beginning on Tuesday, June 15.

The Car Accountants' Association will hold its annual convention in Buffalo, N. Y., beginning on Tuesday, June 15.

The Association of Railroad Telegraph Superintendents will hold its annual convention in St. Paul, Minn., beginning on Wednesday, June 16.

The American Society of Civil Engineers will hold its annual convention in Denver, Col., beginning on Friday, July 2.

Foreclosure Sales.

Foreclosure Sales.

The Painesville & Youngstown road was sold in Painesville, O., June 3, under a decree of foreclosure granted by the United States Circuit Court, and was bought for \$400,000 by J. D. Burrows, as agent for the trustee. The road is of 3-ft. gauge, and extends from Fairport, O., to Youngstown, 62½ miles. The funded debt of the company consisted of \$400,000 first-mortgage and \$1,000,000 income bonds. It is stated that the purchasers intend to organize a new company, to be known as the Pittsburgh, Painesville & Fairport, and to change the road from 3 ft. to standard gauge.

The Beech Creek, Clearfield & Southwestern road was sold in Clearfield, Pa., June 4, and was bought for \$1,300,000, by a committee representing the stockholders, composed of Messrs. W. K. Vanderbilt, C. C. Clark, George F. Baer, C. J. Langdon and J. M. Gazzam. The road extends from Jersey Shore, Pa., to Gazzam, 104 miles, with some 20 miles of coal branches. The sale was made to settle some disputed floating debt claims, and by agreement between the stockholders and creditors the property is sold subject to the first mortgage for \$5,000,000.

The Ohio River & Lake Erie road was sold at sheriff's sale in Erie, Pa., June 4, and bought for \$85,000 by Miss Sarab. A. Reed, of Erie. The road was intended to run from Erie to a junction with the Shenango & Allegheny good, following in its course the old canal bed. No track has been laid, and the sale included the franchise, right of way and partially graded roadbed. Miss Reed, the purchaser, is a sister of the President of the company, and the purchase is understood to be in the interest of the stockholders.

The Louisville, Evanscille & St. Louis was sold under a foreclosure decree at New Albany, Ind., June 9, by William P. Fishback and Frank Jones, commissioners appointed to make the sale. The first sale was under the second mortgage and covered both the main line and the Evansville Division. The property embraced in the first sale sold for \$10,000, subject to an outstanding lien of

Transportation in Congress.

In the Senate on June 3:
Further consideration of the bill to forfeit part of the Northern Pacific land grant was postponed until June 7.
The bill for the taxation of railroad grant lands was taken up. Mr. Hoar withdrew his amendment limiting purchase under the act to 640 acres. After considerable debate the bill was record.

up. Mr. Hoar withdrew his amendment limiting purchase under the act to 840 acres. After considerable debate the bill was passed.

Mr. Van Wyck then called up the House bill on the same subject, and on his motion the Committee' on Public Lands was discharged from its further consideration. He then moved the Senate bill as an amendment in the nature of a substitute to the House bill. The motion was agreed to, and the House bill was amended accordingly. In the disagreeing, vote of the two houses thus brought about, the Senate, on motion of Mr. Van Wyck, ordered a committee of conference. This has the effect of avoiding the delay which would result from the consideration of the Senate bill as an original proposition in the House of Representatives, and puts it a once in the hands of a conference committee.

In the House on the 7th:

The Senate bill authorizing the construction of the Baltimore & Ohio Railroad bridge across the Arthur Kill was passed.

It went through by an almost unanimous vote, and now

passed.

It went through by an almost unanimous vote, and now goes to the President for his approval.

goes to the President for his approval.

Western Association of General Passenger and Ticket Agents.

At the semi-annual meeting in Chicago, officers were elected for the following year.

A short discussion was had regarding rates to land-grant points, which resulted in the adoption of a resolution looking to the establishment of uniform rates on all interested roads. It was agreed to hold the next meeting in St. Louis on the second Wednesday of December next.

ELECTIONS AND APPOINTMENTS.

Allegheny Valley.—Mr. John C. Glass been appointed Master Mechanic of this company, dating from June 5, 1886, to succeed Mr. Wood, deceased. His office will be at Verona shore.

Baltimore & Ohio.—The officers of the new Philadelphia Division are: P. H. Irwin, Resident Engineer; Charles Sel-den, General Superintendeut of Telegraph; W. H. Harrison, Superintendeut of Motive Power.

Superintendent of Motive rower.

Boston & Maine Leased Lines.—At meetings held June 8, officers were chosen as below: Portland, Saco & Portsmouth.—President, Arthur Sewall; directors, Wm. B. Bacon, F. R. Barrett, Thomas W. Hyde, Frank Jones, Samuel C. Lawrence, James R. Nuchols. Portsmouth, Great Falls & Convay.—President, Arthur Sewall; directors, Frank Jones, Samuel C. Lawrence, John W. Sanborn, Charles H. Sawyer; Treasurer, N. G. Chapin. Wolfeboro.—Directors, Arthur Sewall, Frank Jones, Samuel C. Lawrence, John W. Sanborn, Charles H. Sawyer, John M. Brackett, Joseph L. Avery.

Lentral, of Georgia, 2 per cent., semi-annual, polyne 25.
Chicago & Northwestern, 1¾ per cent., quarterly, on preferred, and 3 per cent., semi-annual, on common stock, both payable June 25, to stockholders of record on June 9.
Chicago, St. Paul, Minneupolis & Omaha, 3 per cent., semi-annual, on the preferred stock, payable July 20.
Fitchburg, 2½ per cent., semi-annual, payable July 1, to stockholders of record on June 12.
Lehigh Valley, 1 per cent., quarterly, payable July 1, to stockholders of record on June 21.
Manhattan, 1½ per cent., quarterly, payable July 1, to stockholders of record on June 21.
Chicago, St. Paul, Minneupolis & Omaha, 3 per cent., semi-annual, payable July 1, to stockholders of record on June 18.
Lehigh Valley, 1 per cent., quarterly, payable July 1, to stockholders of record on June 21.
Chicago, St. Paul, Minneupolis & Omaha, 3 per cent., semi-annual, payable July 1, to stockholders of record on June 18.

Burlalo, Rochester & Pittsburgh.—Mr. John F. Dinkey, Auditor and Assistant Treasurer, will hereafter act as Freight Claim. Agent also.

Burlalo, Rochester & Pittsburgh.—Mr. John F. Dinkey, Claim. Agent also.

Burlalo & Williamsville.—Mr. Jasper S. Youngs, of Burlalo, N. Y., has been appointed Chief Engineer of this new road.

Burlington, Cedar Rapids, Ia., May 25, the following directors were chosen for three years. J. W. Blythe, J. N. Dewey, C. Lynde, J. C. Peasley. The board elected C. J. Ives Pres-

ident; Robert Williams, Vice-President; H. H. Hollister, Treasurer; S. S. Dorwart, Secretary and Assistant Treas-

Canada d' Atlantic.—At the annual meeting in Ottawa, Ont., May 25, the old directors were re-elected. The board elected McLeod Stewart President; W. G. Perley, Vice-Pres-ident.

Canada Southern.—The board has re-elected Cornelius Vanderbilt President; C. F. Cox, Vice-President; Nicoll Kingsmill, Secretary; Allyn Cox, Treasurer.

Central Iowa,—At the annual meeting in Marshalltown, Ia., June 2, the following directors were chosen: H. J. Boardman, Edward E. Chase, George T. M. Davis, Wm. Hanna, F. W. Huidekoper, Harvey Kennedy, Francis Peabody, Jr., E. H. Perkins, Jr., Russell Sage, Elijah Smith, Alfred Sully.

Chesapeake & Delaware Canal.—At the annual meeting in Philadelphia, June 8, the following officers were elected: President, Joseph E. Gillingham. Directors: Isaiah V. Williamson, Edwin Swift, Chas. H. Hutchinson, Mahlon P. Hutchinson, Henry C. Ford, R. Dale Benson, Hood Gilpin, Peter C. Hollis, Henry Lewis, David Scull, Thomas McKean, Andrew Gray, John Cadwalader, Charles Chauncey.

Chicago & Alton.—Mr. George Marsh is appointed General Western Freight Agent, with office in Kansas City, Mo., in place of F. S. Daggett, resigned. Mr. Wm. Pratt succeeds Mr. Marsh as local agent at Kansas City.

Chicago Belt.—At the annual-meeting in Chicago, June 1 the following officers were chosen: President, J. B. Carson directors, George H. Ball, F. Broughton, W. J. Spicer, A. A Talmage; Secretary, M. J. Clark; Treasurer, G. W. Stokes

Chicago, Cairo & Great Southern.—The officers are: President, F. P. Robb; General Manager, E. D. Swift; Secretary and Treasurer, A. V. Coale. Office at No. 218 La Salle street, Chicago.

Salle street, Chicago.

Chicago & Indiana Coal.—The officers of this road are as follows: George C. Kimball, Vice-President and General Manager; C. W. Hilliard, Treasurer; G. W. Dunlap, Auditor; L. S. Graves, Local Treasurer; A. M. Nichols, General Preight and Passenger Agent; R. Angst, Chief Engineer; W. S. Page, Master of Transportation; E. M. Nichols, General Roadmaster; G. S. Raper, Storekeeper. Offices at Attica, Ind., except those of the Treasurer and the General Freight and Passenger Agent, which are in Chicago.

Attica, Ind., except those of the Treasurer and the General Freight and Passenger Agent, which are in Chicago.

Chicago, Milwaukee & St. Paul.—At the annual meeting in Milwaukee, June 5, the following directors were chosen: Alexander Mitchell, John Plankinton, Milwaukee; Philip D. Armour, Chicago; Jason C. Easton, Mankato, Minn: Selah Chamberlain, Cleveland, O.: Hugh T. Dickey, Peter Geddes, Joseph Millbank, Wm. Rockefeller, James Stillman, A. R. Van Nest, Julius Wadsworth, James T. Woodward, New York. The board re-elected Alexander Mitchell President; Julius Wadsworth, First Vice-President; John B. Dumont, Second Vice-President; Roswell Miller, General Manager; P. M. Myers, Secretary; R. L. Jennings, Treasurer.

Mr. J. B. Moll is apppointed Superintendent of the Iowa & Dakota Division in place of F. D. Underwood, resigned. Mr. J. B. Cable is appointed Assistant Superintendent of the same division.

The following circular from General Passenger Agent A. V. H. Carpenter is dated Milwaukee, Wis., June 1: "In recognition of his long and faithful service in the field, the jurisdiction of Mr. A. Burnham has been extended, and from this date, he will be assigned to duty as Special Passenger Agent, with headquarters at Milwaukee, Wis. Mr. Harry Mercer will succeed Mr. Burnham as Michigan Passenger Agent, in charge of this company's interests in the state of Michigan, with headquarters at 165 Jefferson avenue, Detroit, Mich. Mr. F. G. Boyd, as Traveling Passenger Agent, will hereafter have sole charge on the lines of the Lake Shore & Michigan Southern Railway (with its branches south of the main line), and New York, Chicago & St. Louis Railway, between Chicago & Dunkirk, N. Y., with headquarters at No. 144 Superior street, Cleveland, Ohio."

Chicago & Northwestern.—At the annual meeting in Chicago. June 3, the following directors were chosen for three

at No. 144 Superior street, Cleveland, Unio."

Chicago & Northwestern.—At the annual meeting in Chicago, June 3, the following directors were chosen for three years: John M. Burke, D. O. Mills, N. K. Fairbanks, Marvin Hughitt, Percy R. Pyne, Horace Williams. The only new director is Mr. Pyne, who succeeds C. J. Osborne, deceased. The board re-elected Albert Keep President; M. L. Sykes, Vice-President, Secretary and Treasurer; Marvin Hughitt, Second Vice-President; S. O. Howe, Assistant Secretary and Assistant Treasurer; J. B. Redfield, Assistant Secretary, Assistant Treasurer and Auditor.

sistant Treasurer and Auditor.

Chicago & Northwestern Proprietary Lines.—At meetings held in Chicago last week officers were chosen as below: Dakota Central.—President, Albert Keep; Vice-President, M. Hughitt; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. Fremont, Elkhorn & Missouri Valley.—President, M. Hughitt; Vice-President, Albert Keep; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. Missouri Valley & Blair Hailroad & Bridge Co.—President, M. Hughitt; Vice-President, P. E. Hall; Secretary, J. B. Redfield; Treasurer, David P. Kimball. Princeton & Western.—President, Albert Keep; Vice-President, M. Hughitt; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. Soux City & Pacific.—President, Marvin Hughitt; Vice-President, M. L. Sykes; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. Winona & St. Peter.—President, Albert Keep; Vice-President, and Treasurer, M. L. Sykes; Secretary, J. B. Redfield; Assistant Secretary, S. O. Howe.

sistant Secretary, S. O. Howe.

Chicago, Rock Island & Pacific.—At the annual meeting in Chicago, June 2, the following directors were chosen for three years: Roswell P. Flower, Benjamin Brewster, George G. Wright and Henry M. Flagler, all being re-elected except Henry M. Flagler, who takes place of A. G. Dulman. The following is the board of directors as it now stands: David Dows, Francis H. Tows, James R. Cowing, Sidney Dillen, R. P. Flower, Benjamin Brewster, H. R. Bishop, Henry M. Flagler, Hugh Riddle, H. H. Porter, Marshall Field, R. R. Cable, George G. Wright. The board re-elected R. R. Cable, George G. Wright. The board re-elected R. R. Cable, George G. Wright. The board re-elected R. R. Cable in Chicago. Appointment took effect June 1. Mr. Royce has been on the road since 1853, having served as station agent, assistant and division superintendent, and. for three years past, as Assistant General Superintendent. Vice-President Kimball has heretofore acted as General Superintendent also.

Chicago, St. Paul, Minneapolis & Omaha.—At the annual meeting in Hudson, Wis., June 5, the following directors were chosen for three years: Albert Keep, H. McK. Twombly, Cornelius Vanderbilt, Wm. K. Vanderbilt. The board re-elected Marvin Hughtt President; M. L. Sykes, Vice-President, Treasurer and Assistant Secretary; E. E. Woodman, Secretary; S. O. Howe, Assistant Treasurer.

Chicago, St. Paul & Kansas City.—The following circular as been issued: "The Chicago, St. Paul & Kansas City

Railway Co. having this day purchased the Wisconsin, Iowa & Nebraska Railway, with all its property and appurtenances and received possession of the same, Mr. George C. McMichael, General Manager of the Wisconsin, Iowa and Nebraska Railway Co., is hereby appointed General Manager of the Chicago, St. Paul & Kansas City Railway Co., with like powers and duties, with headquarter at Marshalltown, Ia. All other officers, agents and employés of the Wisconsin, Iowa & Nebraska Railway Co. are hereby continued in the service of this company on the same terms and conditions as with the Wisconsin, Iowa & Nebraska Co. until further orders.

orders.

Chicago & Western Indiana.—At the annual meeting in Chicago, June 1, the following directors were chosen: A. L. Hopkins, Wabash, St. Louis & Pacific, New York; George H. Ball, Chicago & Eastern Illinois, Boston; F. Broughton, Chicago & Atlantic, Chicago; John B. Carson, Louisville, New Albany & Chicago; Railway, Chicago; W. J. Spicer, Chicago & Grand Trunk, Detroit, Mich. The board re-elected John B. Carson President; M. J. Clark, Secretary and Auditor; G. W. Stokes, Treasurer.

Delaware & Hudson Canal Co.—Mr. H. G. Young is pointed Assistant President, to date from June 1. He continue to act as General Manager, assuming, in additit the duties of that office, such executive duties as may be signed to him by the President.

Delaware, Lackawanna & Western.—Mr. Walter Dawson, Master Mechanic of the main line, having received leave of absence for a year, Mr. Charles Graham, Master Mechanic of the Bloomsburg Division, will have charge of the Motive Power Department of the main line during Mr. Dawson's absence.

Eastern.—The directors have elected Mr. Arthur Sewall, of Bath, Me., President of this company.

Frankfort & State Line.—At a meeting held June 5, this company elected the following directors: J. H. Rice, Indianapolis; W. J. Craig, Toledo; J. P. Rice, John W. Merritt, Frankfort; H. S. Hopkins, St. Louis; W. F. Aiken, Springfleld, Mass.; E. R. Chapman, New York. The Directors elected J. H. Rice, President; J. W. Merritt, Vice-President; W. F. Aiken, Secretary. This is the company which claims a section of the Toledo, Cincinnati & St. Louis road.

Litchfield & St. Louis.—The directors of this new company are: James M. Alvey, H. E. Hensley, H. A. Neal, Edward T. Orr, H. K. Wilson. Office at Charleston, Illinois.

Louisville, New Albany & Chicago.—The following changes are announced: Mr. John H. Garrison, General Southern Passenger Agent, having resigned, that office is abolished; Mr. A. B. Robertson, Traveling Passenger Agent, is appointed Southern Passenger Agent, with office at Atlanta, Ga.; Mr. H. A. Hathaway, City Passenger Agent at Louisville, is appointed District Passenger Agent with office at Louisville; Mr. C. Brockenbrough, City Passenger Agent at Concinnati, is appointed District Passenger Agent.

Louisville, New Orleans & Texas.—From June 3 the office of W. L. Bass, Car Accountant, will be located at Vicksburg, Miss., to which point all communications relating to the car service of this company should be addressed.

Mammoth Cave.—The incorporators of this company include the following: Gen. John F. Wheless, A. H. Robinson, J. Hill Eakin, Col. E. W. Cole, W. M. Duncan, J. C. Bradford, Lewis T. Baxter, R. B. Lea, Nashville, Tepn.; J. F. O'Shaugnessy, New York. Mr. M. Robbins, of Louisville, Ky., is Chief Engineer.

Missouri Pacific.—Mr. G. H. Turner is appointed Division Freight Agent, with office in Fort Worth, Texas.

Montana Northern.—The directors of this new company are: C. A. Broadwater, Thomas Cruse, H. M. Parchen, W. R. Preutt, R. C. Wallace, J. B. Wilson. Office at Helena Montana.

Montgomery & Florida.—The officers of this new company are: President, C. W. Scofield; Vice-President, M. P. Le-Grand; Secretary and Treasurer, S. D. Hubbard. Office in Montgomery, Alabama.

Nescopec.—The directors of this new company are: J. C. right, Guy E. Farquhar, Pottsville, Pa.; J. N. DuBarry, ohn P. Green, Edmund Smith, Henry D. Welsh, J. P. retherill, Philadelphia.

Ordway, Bismarck & Northwestern.—Mr. L. J. John is Chief Engineer, with headquarters at Ordway, Dakota.

Portland & Ogdensburg.—The bondholders organized a new company by the same name at a meeting held in Portland, Me., June S. when the following directors were chosen: S. J. Anderson, H. N. Jose, W. F. Milliken, C. H. Amsdam, Francis Fessenden, S. R. Small, C. J. Chapman, W. H. Woodbury, F. N. Dow and S. W. Thaxter.

Rome, Watertown & Ogdensburg.—Mr. H. A. Callan habeen appointed Western Passenger Agent, with headquarter in Chicago.

St. Louis & San Francisco.—The following circular from President E. F. Winslow announces officially some changes heretofore noted: "Mr. Charles W. Rogers has been reelected First Vice-President. Mr. Henry L. Morrill has this day been appointed General Manager, and will have charge of the Operating and Traffic departments of the road. Officers and employés will respect his orders accordingly. The office of Assistant General Manager is discontinued, and Mr. James Dun as Chief Engineer, will, on and after this date, take charge of the Maintenance of Way and Construction departments, with office at Springfield, Missouri."

Sarrasta Ray — The directors of this new company are:

Sarasota Bay.—The directors of this new company are:
Josephus Collett, J. S. Beach. John Berry, J. Strong, Terre
Haute, Ind.; Piers E. Warburton, Sarasota, Fla.; Frank
Hough, Bartow, Fla.; J. W. Fitzgerald, S. B. Carter, J. M.
Barrs, John Steward, Jacksonville, Florida.

Silver Lake.—At a meeting held in Perry, N. Y., June 1, the following were elected: President, A. G. Yates, Rochester, N. Y.; directors, James Wyckoff, Richard T. Tuttle, Milo H. Olin, Edwin M. Reed, Henry N. Page, Charles Nobles, J. Lansing Moore, Walter B. Duffy, H. H.

Syracuse, Binghamton & New York,—W. K. Niver having resigned as Superintendent of this road, A. H. Schwartz has been appointed Assistant Superintendent, with head-quarters at Syracuse, N. Y. W. C. Brayton has been appointed General Agent Passenger Department, with head-counters at Syracuse. quarters at Syraci

Texas & Pacific.—Mr. J. G. Harris is appointed Division Freight Agent for the Western Division, with office in Fort Worth, Texas.

Ulster & Delaware.—At the annual meeting in Rondout, N. Y., June 9, the old directors and officers were re-elected.

Union Pacific.—Mr. George M. Cumming has been appointed Land Commissioner of this road, in place of Mr.

Leavitt Burnham, resigned, and will have charge of all the land business of the company. Mr. Cumming was for several years Assistant General Land Commissioner of the Northern nd business of the company. Mr. Cumming was for sevens Assistant General Land Commissioner of the North acidic road, but resigned that position about a year ago agan the practice of law at Duluth. He is widely known the Northwest.

Vermont & Massachusetts.—This company, whose road is leased to the Fitchburg Railroad Co., last week elected directors as follows: Edward L. Davis, James A. Dupee, George F. Fay, Wm. H. Hill, Francis Goodhue, Daniel S. Richardson, Thornton K. Ware.

Western Association of General Passenger & Ticket Agents.—At the annual meeting in Chicago, June 9, the fol-lowing officers were elected: President, B. F. Horner; Vice-President, W. G. Baldwin; Secretary, J. G. Hannegan.

PERSONAL.

-Mr. F. F. Daggett has resigned his position as General estern Freight Agent of the Chicago & Alton road.

-Mr. H. B. Potter has resigned his position as Engineer of aintenance of Way of the Troy & Greenfield Railroad and Maintenance of Hoosac Tunnel.

—Mr. William Bliss, President of the Boston & Albany Railroad Co., sailed from Boston, June 5, for Europe, on a short pleasure trip.

—Mr. John H. Garrison has resigned his position as G ral Southern Passenger Agent of the Louisville, New pany & Chicago road.

—Mr. C. B. Cole, formerly Master of Transportation of the Ohio & Mississippi road, is now editor of the Seymour (Ind.) Democrat, and is making a reputation as an able writer.

—Mr. F. D. Underwood has resigned his position as Superintendent of the Iowa & Dakota Division of the Chi-cago, Milwaukee & St. Paul road, to take charge of the con-struction of a new line in Minnesota.

—Mr. William Dawson, Master Mechanic of the Delaware, La kawanna & Western road, has been given leave of ab-sence for a year, and will sail for Europe June 15. He ex-pects to spend some time abroad in the hope of benefitting his health.

—Mr. James Casey, for many years a railroad contractor, died at his residence in Erie, Pa., June 3, after a short illness. In connection with his brother Mr. Casey had heavy contracts on the Welland Canal, the Great Eastern of Canada, the Canadian Pacific, the Erie, the Lake Shore and the Erie & Pittsburgh. He retired from business some years ago, having accumulated a considerable fortune.

—A report telegraphed from Boston to the effect that traces have been found of Mr. Frederick Nourse, Treasurer of the Oregon Railway & Navigation Co., is contradicted. Nothing has been heard of Mr. Nourse, and no trace of him found from the time he left his hotel in London to take the train for Liverpool, where he expected to take a steamer home. No reason whatever is known for Mr. Nourse's disappearance.

appearance,

—Mr. Henry T. Bogue died at his residence in Cohoes,
N. Y.. June 9. He was formerly a railroad contractor, and
built that portion of the Hudson River Railroad from Cold
Spring to New Hamburg, and the Erie Railroad from Hinsdale to Dunkirk. He was also the builder of the first bridge
across the Mohawk River, and of the Riverside Knitting
Mill at Cohoes in 1865, of which he continued proprietor
until his death. He was elected Mayor of Cohoes in 1874.
He was 60 years old.

He was 60 years old.

—A friend and fellow officer of the late Mr. Wood sends us the following: "On May 29 William A. Wood, Jr., Master Mechanic of the Allegheny Valley Railroad, died at his residence at Verona, Pa., after a brief illness. He entered the service of that company in 1868 as an apprentice. On April 14, 1884, he was appointed to the position held at the time of his death, succeeding the late George W. Glass. As a mechanic he had few equals, having mastered the details of every department. Clear-headed, observant, progressive, industrious, he brought the shops to a high state of efficiency. Morally, he was one of the purest of men. He represented in an eminent degree the highest type of the American mechanic."

an eminent degree the highest type of the American mechanic."

—Mr. Henry F. Royce, who has just been appointed General Superintendent of the Chicago, Rock Island & Pacific road, has been connected with that road for 38 years. Mr. Royce was born in South Woodstock, Vt., in 1831. After receiving a common school education he worked on a farm until he was 19 years of age, and in 1850 got work as a laborer in a freight-house on the Boston & Worcester Railroad. In a short time he got a place as a freight brakeman on the same road. In 1852 he entered the service of the Cleveland & To-ledo Railroad as a brakeman on passenger trains, and in the early part of the following year was advanced to the position of check clerk at the freight depot of the same road in Toledo. In August, 1853, he entered the employ of the Chicago, Rock Island & Pacific Railroad as check clerk, being stationed at Tiskilwa, Ill. Since that time he has been constantly with the same road. For the subsequent two years he acted as conductor of passenger and freight trains, and in 1856 entered the general offices in Chicago as freight clerk. During the 12 years following he was at different points in Illinois and Iowa as station agent. In May, 1868, he was appointed Assistant Superintendent, with headquarters at Des Moines, Ia., and organized all the lines of the company in the west as far as the Missouri River. He was advanced to the position of Division Superintendent of the Eastern Iowa Division in 1876, his headquarters being still at Des Moines, Ia., at which point he has been until the present time.

TRAFFIC AND EARNINGS.

Coal.

Anthracite coal tonnage for the week ending May 29 was 437,144 tons, against 500,904 last year, a decrease of 63,720 tons, or 12.7 per cent.

Bituminous coal tonnages for the five months ending May 20 are reported as follows:

	7 D D	
Cumberland, all lines. 458, 493 1,061,98 Hun. & Broad Top 160,370 73,92 Bar. R. R. & Coal Co 85,924 102,99 B. Cr., Clear. & S. W 380,423 263,25	9 D. 603,496 56 7 I. 86,743 117 8 D. 17,074 16	7. 6.
Pennsylvania R. R.: Clearfield 665,911 1,273,06 Mountain District 356,959 209,93 Penn and Westmore 369,670 391,43 Minor districts 526,681 436,42 Chesapeake & Ohio 430,976 413,73 Norfolk & Western 332,403 217,87	4 1. 147,025 70 1 D. 21,761 8 5 I. 90,236 20 7 I. 23,239	0. 5. 0. 5.
Total3,753,790 4,444,849	D. 690,552	5.

The changes shown above are chiefly due to the long strike in the Cumberland and Clearfield districts which has now

just come to an end.

Coke tonnages for the five months to May 29 are reported as follows:

1885, Inc. or Dec. P. c. 789,615 I. 116,487 14.7 233,470 I. 92,240 35.3 32,644 D. 12,654 39.4

Antracite coal		From other lines. 1,319,645 523,914 19,790	Total. 2,076,790 2 438,516 1,251,602
Total	3 003 550	1 863 340	5 788 008

As noted last week, the total increase over the corresponding period last year is 378,271 tons, or 7.1 per cent.

Cumberland coal shipments for the five months to May 29 are reported by the Cumberland Civilian as follows:

79,080

56.8

nage.
Actual coal tonuage passing over the Pennsylvania & New York road for the six months of its fiscal year from Dec. 1 to May 20 was:

1886. Inc. or Dec. P. c.

to May 29 was : 1886. 1885. Inc. or Dec. Anthracite. 738,927 552,342 I. 186,585 Bituminous. 90,420 124,664 D. 34,244 Total 829.347 677.006 L 152,341 22.5

The larger part of the anthracite is received from the Lehigh Valley road, of which this line is an extension.

St. Louis coal receipts for the five months to May 31 were, in tons: 1885. 780,182 18,005

..... 820,116 798,187 21,969 Nearly all the coal comes from Southern Illinois, and the haul on it is quite short.

Pennsylvania Railroad coal tonnage for the week ending June 5 was:

Coke. 77,107 560 Total. 210,865 89,491 218,517 64,290

Boston Traffic Notes.

The steamer "Hart," of the New York & New England road, transferred 523 loaded and 2,060 empty freight cars westward bound across the Hudson River during the month of May, and 2,261 loaded and 87 empty ones came eastward during the same period.

Cotton.

otton movement for the week ending June 4 is reported follows, in bales:

Interior markets:	1886.	1885.	Inc	e. or Dec.	P.c.
Receipts		3,258	I.	7,877	240.0
Shipments	27,986	9,124	I.	18.862	207.3
Stock, June 5	139,841	51,941	I.	87,900	169.1
Seaports:					
Receipts	19,837	3,917	I.	15,920	408.2
Exports	70,347	20,356	I.	49,991	225.4
Stock, June 5	508,255	427,341	I.	80,914	18.9

The total shipments from plantations for the crop year to June 5 are estimated at 6,406,218 bales, against 5,588,335 last year, 5,613,299 in 1883-84, and 6,864,341 in 1882-83. The Commercial and Financial Chronicte says: "The movement up to June 1 of the present year is 810,416 bales more than in 1884-85, and 790,505 bales more than in 1883-

44.
 "As it will interest the reader to see what has come into sight each month of the season during this and previous years, we have prepared the following, which shows the movement for the last four seasons.

1884-85. 413.836 1,309.111 1,390,902 1,360,404 513,187 291,753 192,903 83,911 33.978 1883-84. 450,047 1,325,716 1,317,773 1,264,816 453,985 370,337 5,589,980 Total 9 months.6,400,396 6,841,229

"The movement up to June 1 shows an increase in the average weight of bales as compared with the same period of the last two years, the average this year being 486.56 lbs. per bale, against 481.02 lbs. per bale for the same time in 1884-85, and 482.22 lbs. per bale in 1883-84."

Southwestern Railway Association.

Commissioner J. W. Midgley, of the Southwestern Railway Association, has prepared a statement of the tonnage and revenue of the lines interested, from Jan. 1 to March 31. The total tonnage was 387,539 tons, and the total revenue therefrom was \$1,831,699. The revenue of each line was as follows:

Hopkins Line. C. R. I. & P W. St. L. & P M. P. H. & St. J. C., H. & Q., B. & M., M. P., J. & Pts. M. P., St. L., F. S. &	82.966 197.537 227.990 107,620 20,731 10,216 16,998	14,172 35,080 238,807 162,228 6,727 41,713 16,564	97.135 232.617 466.795 269,845 27,455 51,936 33,565
W., etc	6,805	5,434	12,240
Totals	1,050.289	3781,410	\$1,831,696

The Quincy and the Hopkins lines and the Hannibal & St. Joseph all belong to the Chicago, Burlington & Quincy.

Railroad Earnings.

Earnings of railroad lin ous periods are reported a

follows: Five months to M		ar rous per rous a	- reporte	
Buff., N. Y. & P Suff., R. & Pitts. Canadian Pac Central Iowa Chi. & Alton Chi. & Alton Chi. & East. III Chi., Mil. & St. P. Chi. & N. W Ch., St. P., M. & O. Chie. & W. Mich C. I., St. L. & C. Det., Lant. & No. Den. & R. G Ev. & T. Haute. Flint & Pere Mar. Illinois Central Iowa lines Long Island Louisv. & Nash. Mexican Central. Mil. & Northern. Mobile & Ohio N. Y. City & No. Norfolk & West. Northern Pacific. Oreg. R. & N. St. L., A. & T. H. Main Line	1886, \$973,654 431,768 3,218,581 497,259 2,865,561 657,109 8,714,432 2,184,013 532,948 1,007,704 460,961 2,304,047 277,962 904,434 3,942,444 630,056 930,942 5,198,772 1,558,246 244,897 722,495 27,114 452,479 1,193,987 3,879,009 1,789,773 445,431	\$868.886	\$104,764 16,278 600,616 116,604 182,175 31,521 171,479 31,521 171,479 31,537 143,502 48,313 48,313 48,313 48,313 48,313 48,213 4	P. c 10.9 3.6 23.0 3.5 6.0 5.0 0 1.9 10.3 7.0 9.9 9.3 8.5 4.4 1.8 9.7 2.9 2.9 2.0 3.5 1.0 8.0 9.7 1.0 9.7 1.0 9.8 1.0 9.8 1.0 9.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
St. L., Ark. & T St. L. & San F St. P. & Duluth St. P., M. & Man. Wabash, St. L. & P	270,525 503,380 1,667,007 423,659 2,463,754 4,879,226	302,254 D. 368,312 I. 1,647,625 I. 345,070 I. 2,635,303 D. 4,689,960 I.	31,729 135,068 19,382 78,589 171,549 189,266	36 8 1.2 22.8 6.5 4.0
Four months to. Atch., T. & S. F. Net earnings. Bangor & Piscat. Canadian Pac Net earnings. Ches. & Ohio Net earnings. Ches., O. & S. W. Net earnings. C. I., St. L. & C. Net earnings Eliz., Lex. & B. S. Net earnings. L. Rock & Ft. S. Louis. & Nash. Net earnings. Mexican Coubral. Net earnings.	4pril 30: \$4,490,441 1.824.412,41,821 2.457,124 608,065 1.188,726 408,071 493,971 493,971 493,971 493,971 493,971 493,971 493,971 493,971 493,971 493,971 494,	\$4.824,404 D. 2047.666 I. 36.861 I. 2,005,378 I. 604.812 I. 1,069,781 I. 2608.88 I. 475,476 I. 125,804 I. 8.298,579 D. 3,612,619 D. 778,172 I. 263,229 I. 213,318 I. 159,720 I. 181,419 I. 4,694,272 D. 1,882,199 D. 1,869,847 D.	\$333,963 223,254 4,960 451,746 3,253 119,945 103,823 18,495 34,197 905,430 493,193 39,050 44,778 49,618 25,085 3,236 523,310 417,586 29,751 191,421	6.9 10.9 13.4 22.5 0.5 11.2 36.3 3.9 27.1 10.9 13.6 5.0 17.0 23.3 41.8 1.9 11.1 22.2 2.4 31.7
Southern Pac. Co.: Atlantic System Net earnings Union Pacific Net earnings	2,823,797 733,095 7,130,818 1,984,849	2,705,621 I, 1,080,971 D, 7,201,607 D, 2,242,113 D.	118,176 347,876 70,789 257,264	4.4 32.0 0.9 11.5
Three months to Maine Central Net earnings	March 31: \$616,726 180,364	\$590,483 I. 172,147 I.	\$26 243 8,217	4.4 4.8
Month of March Maine Central Net earnings	\$242,550 92,585	\$221,564 I. 83,104 I.	\$20,986 9,481	9.5 11.4
Month of April. Atch., T. & S. F. Not earnings. Canadlan Pac. Net earnings. Ches. & Ohlo Net earnings. Ches. & Ohlo Net earnings. Ches. & O. & S. W. Net earnings. Chi., Bur. & Q Net earnings. C. I. St. L. & C. Net earnings. Eliz., Lex. & B. S. Net earnings. Gr. B., W. & S. P. Net earnings. L. Rock & Ft. S. Louisv. & Nashv. Net earnings. Mexican Central. Net earnings. So. Pacific Co.:	357,762 317,162 317,162 105,821 124,071 124,071 125,2740 813,207 183,831 65,743 24,935 30,852 6,895 43,506 967,740 313,925 311,554 86,862	\$1,297,825 D. 692,141 L. 324,433 L. 290,002 L. 83,075 L. 119,244 L. 32,786 L. 32,786 L. 2,005,070 D. 180,999 L. 55,688 L. 23,318 L. 2,592 L. 36,960 L. 36,969 D. 444,029 D. 308,391 L. 135,841 D.		16.4 29.3 1.0
Atlantic system. Net earnings Union Pacific Net earnings	231,430 2,113,440 752,709	695,143 I. 302,126 D. 1,987,191 I. 653,889 I.	100,004 70,696 126,249 98,820	14.4 23.4 6.3 15.1
Month of May: B. N. Y. & Phila. Buff., R. & Pitts. Canadian Pacific. Central Iowa. Chi. & Alton. Chi. & East. Iii. Chi. Mil. & St. P. Chi. & Nor'west. C., St. P. M. & O. Chi. & W. Mich. C. J. St. L. & C. Denver & R. G. Dirrort, I. & N. Ev & T. Haute. Flint & Pere M. Iii. Central. Louis J. Chi. Louis J. Chi. Mil. & Nor'west. Louis V. Month. Louis J. L. & N. Louis J. Chi. Mil. & Nor'west. Northern. Mobile & Chile N. Y. City & No. Norfolk & West. Northern Pacific. Ores. R. & N. St. L., A. & T. H. Mall. Line.	108.389 581,278 110,920 1,768.000 2,025,400 111,168 190,502 488,432 102,685 58,405 195,584 786,741 786,741 786,741 134,197 229,188 40,751 135,365 47,361 208,425 5952,839 464,000	\$190,419 I. 87,902 D. 612,587 I. 88,562 I. 88,562 I. 591,091 D. 126,510 D. 127,600 I. 475,600 I. 475,600 J. 111,850 D. 192,175 D. 192,175 D. 173,170 I. 1816,004 D. 124,936 I. 1,102,414 D. 124,936 I. 1,102,414 D. 128,276 I. 1,102,414 D. 129,53 D. 47,669 I. 122,653 I. 36,503 I. 122,653 I. 33,9461 I. 339,461 I.	247,413 19,837 9,813 9,530 107,231 47,600 10,200 19,200 3,854 2,356 22,671 29,261 11,922 74,604 1,603 2,082 12,712 10,683 29,178 51,739 124,539	40.4 22.3 1.7 7.6 5.7 2.4 4.0 0.6 0.9 6.1 3.9 13.1 5.5 6.8 0.9 10.3 29.8 10.3 29.8 16.6
Belleville Line. St. L., Ark. & T St. L. & San F St. P. & Duluth. St. P., M. & Man Wab., St. L. & P.	98,322 51,515 93,271 364,000 112,706 429,795 659,242	78.931 I. 47.797 I. 61,757 I. 319,100 I. 83.129 I. 489,542 D. 827,984 I.	31.514 44 900 29,577	50.8 10.8

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

Southern Rates to and from Ohio River Points. Southern Rates to and from Ohio River Points. A dispatch from Chattanooga, Tenn., June 2, says: "Last March the Associated Rallroads of Kentucky, Tennessee and Alabama submitted by agreement to Judge Thomas M. Cooley of Michigan, for arbitration, the relative adjustment of rates from Cincinnati, Louisville, Jeffersonville, Evansville, Henderson and points beyond; also from Memphis, Vicksburg and New Orleans to Chattanooga and beyond; all points south of the Memphis & Charleston Railroad, including points in the Richmond & Danville territory and east of the Mississippi River to which two or more parties to the contract may compete. Judge Cooley decided that rates from Nashville to the points named are subject to regulation under the agreement. Rates from Henderson shall be the bridge toll less than the rate from

Evansville. Permission to refund the bridge tolls to shippers at Louisville shall be extended to embrace all articles in classes B, C, D and F, also potatoes, onlons and apples. The question of differentials from Cincinnati and Louisville into Montgomery territory, Judge Cooley decided, should be fixed by the Commissioner of the lines until Oct. 1, when he will decide the matter."

Solidating with a company in another state, and a mortgage would afford little security if its lien could be divested by a proceeding outside of the commonwealth and a sale of the mortgaged property without notice or advertisement of any kind along the line of the road or within this jurisdiction.—

Pittsburgh Chronicle-Telegraph, June 3.

Injury to a Child—Negligence.

Indianapolis Car Movement.

number of cars received and forwarded at Indianapoli

		Week	ending	
000 5	May 15.	May 22,	May 29.	June 5.
886-Total	16,375	18,796 14,436	18,950 14,321	18,588 13,866
885—Total		16,975	18.271	18,750
	13,156	12,848	13.845	14 321

Lake and Canal Rates. Lake and Canal Mates.

The Buffalo Commercial Advertiser says: "The first month of the season of 1886 has been an eminently satisfactory one to the owners of vessels and canal boats, as the following exhibit of the average rates on wheat and corn from Chicago to Buffalo by lake, and the average on the same cereals from Buffalo to New York, by canal, for the month of May, will

эпом	*														Le	ake			Car	al
															heat.		Corn.		Wheat. Cents.	Corn
1886.					 												Cents.		5 8	5.
1885.								 							. 2.1		1.8		4.2	3.5
1884.																	2.0		3.8	3.
1883.																	2.6		5.0	4.
															2.2		2.0		4.9	4.
															4.7		4.2		5.3	4.3
1880.																	4.3		6.9	5.
1879.						Ī	•		1			1	Ĭ	Ì	. 3.1		2.8		4.7	4.
1878.						ì					Ī	Ī			2.5		22		5.8	5.3
1877.				_									ì	Ī	. 3.5		2.9		5.8	5.
1876			 	0	 										. 3.0		2.7		6.7	5.
	-											_		-				-		-

1870 3.0 2.7 6.7 5.8 "These averages are the best since the phenomenal years of 1880 and 1881. The season opened with a good demand for vessels, and rates ruled quite steady throughout the month. The highest price paid on wheat by lake was 3½ cents and the lowest 2½ cents; the highest by canal was 6½ cents and the lowest 5½ cents. There is money in these freights for carriers, and we would like to see them prevail throughout the season; but from present appearances this hope will not be realized."

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior Region from the opening of navigation up to June 2 are reported by the Marquette Mining Journal as below:

			Tons
Marquette I	District	. L'Anse	
**	4.6	Marquette	138,65
64	6.6	St. Ignace	. 12.750
66	6.6	Escanaba	
Menominee	66		. 157.39
Gogebic	66	Ashland	. 31,570
Vermillion 1	Lake,	Two Harbors	16,82
(Cotol			45 4 400

No shipments were made from L'Anse up to June 2. The total from the several districts was: Marquette, 248.609; Menominee, 157.398; Gogebic, 31,576; Vermillion Lake, 16,829; total, 454,403 tons. Shipments from the Marquette and Menominee districts to the corresponding date last year were 241,940 tons, showing an increase this year of 164,067 tons, or 63 7 per cent. The gain is partly due to an earlier opening of navigation this year.

Central Traffic Association.

Central Traffic Association.

A session of the Passenger Department was held in Chicago, June 9, and attention was given to the selection of five names from which the arbitrator or arbitrators are to be chosen. Those settled upon were J. Charlton, General Passenger Agent of the Chicago & Alton; A. V. H. Carpenter, General Passenger Agent of the Chicago, Milwaukee & St. Paul; Thomas McKissock, Vice-President of the Illinois & St. Louis; E. P. Wilson, Arbitrator of the Chicago, St. Louis & Missouri River Passenger Association, and T. P. Kimball, Traffic Manager of the Union Pacific. These names are to be referred to the general managers, and either one or three will be tendered the position. The questions to be arbitrated are not percentages, but the question of east-bound differentials. Adjournment was taken until June 23.

Central Passenger Committee.

In Chicago, June 9, a brief but important session was had of the Central Passenger Committee. A resolution was adopted that unless the Chicago & Atlantic, the Nickel Plate, the Indiana, Bloomington & Western, and the Lake Erie & Western gave in their adherence to the Committee on or before July 9, the organization should be disbanded, and the committee roads left free to make such rates as they might please. It was agreed that this was the wisest course to pursue, throwing any responsibility for subsequent demoralization upon the outside roads. To attempt to maintvin the rates with these four lines penetrating all portions of the territory and securing the business by cutting under the tariff was a farce.

RAILROAD LAW.

Injury to a Child-Negligence.

In the case of Ferguson, by next friend, against the Colum-us & Rome Co., the Georgia Supreme Court holds as fol-

bus & Rome Co., the Georgia supreme court issues a lows:

Where a railroad company leaves a daugerous machine, such as a turn-table, unfastened in a city, on a lot which is not securely inclosed, and where people and children are wont to visit it and pass through it, this is negligence on the part of such company, and where an infant of 10 or 12 years of age resorted to the turn-table and in riding upon it was dangerously and seriously injured, the said company is liable for damages for such injuries to the infart.

And this is so, notwithstanding the father of the infant permitted her to go near the turn-table to carry breakfast to a minor brother who had been left by the father to protect other property of the company than the turn-table. The fault of the father, if any, is not attributed to the infant, the action being brought by the infant herself.

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—The statement for April and the four months to April 30 is as follows:

	A1	oril.	Four months				
Miles worked	1886.	1885.	1886.	1885.			
	2,418	2,375	2,415	2,375			
Earnings		\$1,297,825	\$4 490,441	\$4,824,404			
Expenses		736,066	2,666,029	2,776,738			
Net earnings	\$500,329	\$561,759	\$1,824,412	\$2,047,666			

Net earnings ... \$500,329 \$561,759 \$1,824,412 \$2,047,666 For the four months the gross earnings decreased \$333,963, or 6.9 per cent., and the expenses \$110,709, or 4.0 per cent., the result being a decrease of \$223,254, or 10.9 per cent., in net earnings.

Tracklaying on the Montgomery County Branch of this road was begun at Independence, Kan., April 19, and since that time the rails have been laid from Independence southwest through Bolton to Havana, a distance of 19 miles.

Tracklaying on the Arkanasa River & Western Branch was begun April 15, at the bridge near Hutchinson, Kan., and the rails are now down from that point westward through Reno Centre, Abbeville and Plevna to Sylvia, a distance of 29.7 miles. Work on this branch is being pushed westward. vestward.

Baltimore & Ohio. -The extension from Baltimore to Philadelphia has been turned over by the Construction De-partment to the Road Department of this company, and will hereafter be known as the Philadelphia Division of the road.

Bangor & Piscataquis.—For the four months to April 30 this Maine road earned \$41,821, an increase of \$4,960, or 13.4 per cent. The net earnings show a gain of nearly 75 per cent. for the same period.

Beech Creek, Clearfield & Southwestern.—This road was on June 7 transferred to the possession of W. K. Vanderbilt and others, the purchasers at the late sheriff's sale. The old officers of the company are retained in the service of the purchasers. A meeting will be held on June 28 to organize a new company.

Bentonville & Western.—This company has been organized to build a railroad from Rogers in Benton County, Ark., west to Bloomfield, a distance of 30 miles. The road will be a branch of the St. Louis & San Francisco.

Boston & Maine.—The Committee on Railroads of the Massachusetts Legislature has reported a bill authorizing this company to build a new passenger station in Boston between the Charles River and Causeway street, and also authorizing the company to unite with any other of the lines entering Boston from the north and northeast in building such stations.

	Gross earnings	April, 1886. \$835,542 477,7:0	Four months. \$2,457,124 1,849,059
1	Net profits		\$608,065

Chesapeake & Ohio.-The statement for April and the

four months to April 8	SU IN AS IO	HOWS:		
				months
Earnings		1885. \$290,002 206,927	\$1,189,726 \$25,015	
Expenses				200.888
Net earnings		\$83,075	364,711	

3 1	Foreclosures in Pennsylvania-Legal Domicile of	Net earnings \$105,821 \$83,075 364,711	
6 1		Net earnings \$105,821 \$85,075 504,711	200,888
2.1	Corporation.	For the four months the gross earnings increased \$	119.945
81	The action of Judge Mayer, of Lock Haven, in appointing	or 11.2 per cent., and the expenses \$16,122, or 2.0 p	er cent
1	Tatlow Jackson Receiver of the line of the Rochester &	leaving a gain of \$103,823, or 36.3 per cent., in 1	et come,
	Pittsburgh Railroad in Pennsylvania was made the subject		non cantin
	of some criticism at the time, and an appeal from his decree	ings.	
	was taken to the Supreme Court, which was argued in this	Chicago, Burlington & NorthernThe to	tal track
	city by the Hon. Wheeler H. Peckham a few weeks ago, but	laid on this road up to May 29 was as follows:	
5 1	on Monday last, at Harrisburg, the Supreme Court dismissed	Main line.	Sidings.
6 3	on Monday last, at Harrisburg, the Supreme Court dishussed	La Crosse, Wis., north	3.075
7 1	the appeal and confirmed Judge Mayer's decree.	" south 23,100	0,196
e	In the issue of stock and of mortgage bonds the provisions	" south 23,100 " loop line 6830 " yard 1996	0.206
	of the Pennsylvania Constitution and statutes were disre	" vard	1.071
1	garded, and an attempt was made, under the decree ren-	Dubuque, 18., torth	
	dered by a New York court, at Rochester, to sell, through a	south 6.073	1.543
	referee, the entire line of road running through Pennsyl-	Newport, north	1 061
	vania, as well as in New York, without having ancillary pro-	south 14,402	0.307 2.749
	ceedings in this state, and without complying with the pro-	Savanna, Ill., north	0.660
. 1	visions of the Pennsylvania statutes.	Savanna, III., Borth	0.000
tl	The opinion of Judge Mayer was a very elaborate one, and	One 711 west 19 961	1.187
-11	he maintained that so far as the consolidated corporation	Oregon, Ill., west	
	undertook to create debts or to deal with property in the	ley Junction)	
	state of Pennsylvania it must be regarded as a Pennsylvania	Trevino 0.638	*****
	corporation and comply with the laws of the commonwealth,		-
0 1	and the Supreme Court has sustained this view and affirmed	Total miles	12.016
	his decree.	This is a gain of 46.157 miles of main track a	nd 2.914
01,	It is obvious that this decision is of great practical import-		
il.	ance to stockholders and bondholders in this state. The con-		se. Wis.
	stitution would give them very little protection if a railroad	and Trevino (Chippewa Valley Junction), a distance	of 62.74
1 1 2	company could emancipate itself from its control by con-	miles on Monday June 7	
	company could enumerable usen from its control by con-	mines, ou monday, same	

Chicago, Burlington & Quincy.—The statement for April and the four menths to April 30 is as follows:

-- April --- Four month April - Feur months.

1886. 1885. 1885. 1885.
Earniugs. \$1,952.740 \$2,065.070 \$7,393.149 \$8,298,574
Expenses. 1,139,533 1,195,609 4,273,723 4,685,960 Net earnings... \$813,207 \$869,461 \$3,119,426 \$3,612,618

For the four months the gross earnings decreased \$905,430, or 10.9 per cent., and the expenses \$412,237, or 8.8 per cent., leaving a decrease of \$493,193, or 13.6 per cent., in net

Chicago, Cairo & Great Southern.—Grading is reported in progress on this road from Newton, Ill., to Marion about 50 miles. The line is located from Newton to Grand Tower on the Mississippi River.

Chicago & Indiana Coal.—Preparations are being made to extend this road from its present terminus at Fair Oaks, Ind., northward to La Crosse, where it will connect with the Chicago and West Michigan. The extension should be of benefit to both roads, giving this line an outlet northward for its coal, and the Chicago & West Michigan a new-southern connection for its lumber trade.

Chicago, Kansas & Nebraska.—A contract has been let for the grading of a section of this road of 40 miles from St. Joeeph, Mo., westward. This is the line which the Chicago, Rock Island & Pacific road is building into Kansas and Nebraska.

Chicago, Milwaukee & St. Paul.—A contract has been let to Harrison & Green, of Milwaukee, Wis., to build the new branch to Sioux City, Ia. This branch will leave the Council Bluffs line at Astor, Ia., 45 miles east of Council Bluffs, and will run to Sioux City, a distance of 86 miles. It will connect with the company's line from Sioux City to Yankton, giving its Dakota system a new outlet eastward.

Yankton, giving its Dakota system a new outlet eastward.

(Cincinnati, Indianapolis, St. Louis & Chicago.—
It is announced that this company is making arrangements to issue \$5,000,000 consolidated bonds, to bear 4 per cent. interest, the proceeds to be used to retire an equal amount of the present bonded debt now bearing interest at 6 per cent. This will effect a reduction of \$100,000 yearly in the interest charges of the company, leaving that amount to be applied to dividends on the stock

The statement of this company for April and the ten months of the fiscal year from July 1 to April 30 is as follows:

lows;	1886.	1885.	In	c. or Dec.	P.c.
Expenses	\$193,831 126,697	\$180,999 126,978	I. D.	\$12,832 281	$\frac{7.1}{0.2}$
Net earnings	\$67.134 50,000	\$54,021 50,900	I.	\$13,113	24.3
Surplus, April Surplus to April 1	\$17.134 279,487	\$4,021 270,510	I.	\$13,113 8,977	327.8
Total surplus, 10 months	\$296,621	\$274,531		\$22,090	8.0

The surplus for the ten months this year is equivalent to the tent on the stock.

Apport in circulation that negotiations were in progress for a sale of this road to the Illinois Central Co. has been contradicted. It was not a very probable rumor, and had its origin in some negotiations for an amended traffic agreement between the companies.

origin-ha some negotiations for an amended traffic agreement between the companies.

Cincinnati, Sandusky & Cleveland.—The lease of this road to the Indiana, Bloomington & Western Co. provided that the rental of the road should be 33½ per cent. of the gross earnings. The section of the Cincinnati, Sandusky & Cleveland from Dayton to Springfield was then, and had been for a number of years, leased to the Cleveland, Columbus, Cincinnati & Indianapolis Co. at a rental of 35 per cent. of its gross earnings. After the lease was made and the road transferred, the Sandusky Co. claimed that the entire rental of this section of the road should be paid over to it, while, on the other hand, the lessee claimed that the rental should go into the gross earnings and be counted as part of it, so that the Sandusky Co. has received only 33½ per cent. of the amount. In order to determine the proper construction of the lease a suit was brought in the Court of Common Pleas, which was subsequently carried up to the Ohio Supreme Court. The Supreme Court has now decided that the Indiana, Bloomington & Western must pay to the Cincinnati, Sandusky & Cleveland 33½ per cent. of the entire gross earnings, such gross earnings to be made up by including not the 35 per cent. paid over as rental for the section between Springfield and Dayton by its lessee, but the entire gross earnings of that section. The sum in dispute now amounts, it is stated, to nearly \$250,000, and under this decision the lessee will have to pay it.

Cleveland & Marietta.—The United States Circuit ourt has confirmed the sale of this road to the bondholders. It is reported that negotiations are in progress for the sale of the road to the Valley Railroad Co., or for its consolidation

Columbus, Hocking Valley & Toledo.—Prepara-tions are being made to put in operation the new freight line, for which an agreement was made some time ago. This line is to run over the Columbus, Hocking Valley & Toledo, the Kanawha & Ohio and the Chesapeake & Ohio roads to New

Cornwall & Lebanon.—The Colebrook Valley Rail road, which has been operated by this company under lease has been consolidated with it. The consolidated line extends from Lebanon, Pa., to Conewago, a distance of 23 miles. The two roads had substantially the same ownership and the consolidation is chiefly a formal matter.

consolidation is chiefly a formal matter.

Eastern.—The Railroad Committee of the Massachusetts
Legislature has reported a bill to authorize this company to
issue and sell bonds bearing not over 6 per cent. interest for
the purpose of reducing its certificates of indebtedness to the
amount of \$10,000,000. These bonds will be secured by
mortgage on the road, and may be sold in such a manner as
the stockholders may direct. Under the terms of the agreement by which the certificates of indebtedness were issued,
whenever their amount is reduced to \$10,000,000, the stockholders will resume control of the road, and will thereafter
elect all the directors. Until that time the holders of the
stockholders choosing only 3,

Fast Tennesses. Virginia & Georgele, at is stocked.

East Tennessee, Virginia & Georgia.—It is stated that Mr. Calvin S. Brice and General Samuel Thomas have purchased the interest of Mr. George I. Seney in this company, thereby virtually becoming owners of the property. They previously held some \$5,500,000 of the consolidated mortgage bonds, and their new acquisition, which announts to \$4,000,000, will give them control of the reorganization, enabling them to name the directors of the new company.

Georgia Midland & Gulf.—This road is chartered to run from Columbus to Athens, Ga. The First Division, of 98 miles, Columbus, Ga., to a junction with East Tennessee, Virginia & Georgia, in Henry County, is under contract.

P. P. Dickinson, of No. 7 Nassau street, New York, is contractor for the grading and trestling. The contract compels, under forfeiture of bond, the completion of this division by May, 1887.

Steel rails (56 lbs.) for 100 miles have been bought. About 1,000 men are at work on the first 30 miles from Columbus. The Georgia Midland Construction Co. is general contractor to build and equip the road. A surveying corps is now running the preliminaries from Locust Grove to Athens, Ga. The first division (98 miles) will be all in operation by next summer. The first 20 miles will be in operation Sept. 15 next. The road will pass through Griffin, but will not terminate there. A mortgage has been executed to secure \$15,000 per mile in 40 year gold bonds at 6 per cent. The Central Trust Co. of New York, is Trustee. There is no other mortgage or preference of any kind.

ther mortgage or preference of any kind.

Georgia Railroad Commission.—The Western & talantic Co., representing the railroads of the state, recently pplied to the United States Circuit Court for an injunction or restrain the Georgia Railroad Commission from exercising urisdiction over through freight rates, and otherwise interering with inter-state commerce. In Atlanta, June 9, the Court refused the injunction, on the ground that the Commission had not yet attempted to exercise the jurisdiction laimed.

Great American & European Short Line.—A dispatch from Halifax, Nova Scotia, says: "Sir George Stephen, of Montreal, announces that he has completed arrangements for the construction of the Short Line, and that by the fall of 1887 the entire road from Montreal to Moncton, N. B., connecting with the Intercolonial Railway, will be in running order. This will shorten the distance between Montreal and Halifax by over 200 miles." This indicates that the Short Line will be under Canadian Pacific control.

Gulf, Colorado & Santa Fe.—It is announced that the alance of the first-mortgage bonds of this road, amounting o about \$1,000,000, have been placed with a Boston syndite. These bonds will be issued as the extension of the road completed, at the rate of \$12,000 per mile, the syndicate greeing to take them as required.

Kansas & Gulf Short Line.—The suit brought to settle the dispute between the New York and Texas stock-holders as to the ownership of the controlling interest in this line has been remanded by the United States Circuit Court to the state court, to which it was removed some time ago on the petition of the New York stockholders. The Court holds that the case comes properly under the jurisdiction of the state court, and notice was given of an appeal from this decision.

Indiana, Bloomington & Western.—In the question in dispute between this company and the Cincinnati, Sandusky & Cleveland, with regard to the amount of rental to be paid for that road, the Ohio Supreme Court has decided in favor of the Cincinnati, Sandusky & Cleveland Co., as

Litchfield & St. Louis.—This company has been organ-ed to build a railroad from Litchfield, Ill., to Alhambra in

Louisville & Nashville.—The statement for April and he ten months of the fiscal year from July 1 to April 30 is as ollows:

1886. 1885. 1885. 1885. 80. 1884-85. 8967,740 \$1,158,699 \$11,007.440 \$1,180,492 \$10,007.440 \$1,800,492 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10,007.440 \$10

Net earnings...\$313,925 \$444,029 \$4,154.143 \$5,000,353

Net earnings...\$313,925 \$444.029 \$4,154.143 \$5,000,355
For the ten months the gross earnings decreased \$793,052, or 6.7 per cent., and the expenses increased \$53,160, or 0.8 per cent., the result being a decrease of \$846,212, or 16.9 per cent., in net earnings.
For the ten months of this year payments for construction (not included in expenses) were \$226,518 in all.
Reports have been current in New York to the effect that the Amsterdam interest in this road was about to apply for the appointment of a receiver. These reports are based chiefly on the decrease of the earnings reported for several months past. Officers of the company state that there is no foundation whatever in such a statement. The company is not in default on any of its interests, and accruing coupons are provided for. The company has also provided for all the money needed to pay for the change of gauge.

Macon & Covington.—It was originally understood

Macon & Covington.—It was originally understood that this road was to run from Macon, Ga., to Covington, and thence to a connection with the Atlanta & Charlotte Division of the Richmond & Danville, near Gainesville. It is now stated that the road will be built to Athens, Ga., as the northern terminus. Negotiations to this end have been in progress for some time, but what inducements were offered to the company to make this change is not stated.

Maine Central.—The statement for March and the three conths to March 31 is as follows:

March. Three months. 1886, 1885, 1886, 1885, 1886, 1885, 1886, 1885, 1894, 189 Net earnings....... \$92,585 \$83,104 \$180,364 \$172,147

For the three months the gross earnings increased \$26,243, r 4.4 per cent., and the expenses \$18,026, or 4.3 per cent., aving a gain of \$8,217, or 4.8 per cent., in net earnings.

Mammoth Cave.—A company is to be organized to build a railroad 9 miles long, from Glasgow Junction, Ky., or the Louisville & Nashville, to the famous Mammoth Cave, which has heretofore been accessible only by stage. A number of gentlemen from Louisville and Nashville are interested in the project, and have, it is understood, subscribed enough to secure its construction. A survey of the line is now in progress.

Marietta & North Georgia.—Tracklaying on this oad, which has been completed from the old terminus at Elijay, Ga., northward about 18 miles, is temporarily susended, watting for the completion of several bridges. As oon as these bridges are done the work will be resumed on he track. The track is ballasted as fast as laid. The bridge building force will be removed next week to the bridge over the Toccoa River in Tanin County.

the track. The track is ballasted as fast as laid. The bridge building force will be removed next week to the bridge over the Tocooa River in Tanin County.

Mexican Central.—At a meeting of the directors in Boston, June 4, Vice-President Symon, who had just reposition from Mexico, was present, bringing with him a proposition from the Mexican government with regard to the substantially as follows: The government offers to renew the payment of subsidy. This proposition is said to be substantially as follows: The government offers to renew the payment of subsidy Jan. 1, 1887, to the extent of 2 per cent. of the customs revenue of the country, and also offers to make some important concessions in the matter of freight rates. Mr. Symon has also brought an agreement from the state of San Luis Potosi, extending the time for the completion of the Tampico Branch for two years. The directors considered these propositions, but adjourned until this week without taking any action.

The Boston Advertiser of June 7 says: "This extension of the control of the Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short narrow-gange line which connects its line with the hotels on Nantasket Beach Railroad, a short page the which connects its line with the hotels on Nantasket Beach Railroad, a short page the wich connects its line with the hotels on Nantasket Beach Railroad, a short page the which connects its line with the hotels on Nantasket Beach Railroad, a short page the which connects its li

time on the Tampico Division, according to a despatch received on Friday night, is independent of the national concession to the company and of the time of construction mentioned therein. The modified national concession likewise provides for an extension of the time for building this branch and the Pacific Branch. The proposition for the resumption of subsidy payments is understood to be on the basis of 2 per cent. Jerus 1, 1887; a per cent. July 1, 1889; for event. July 1, 1889, and 8 per cent. Jan. 1, 1890, and thereafter until the full subsidy is paid. This would make average payments of 2½ per cent. in 1890, and thereafter until the full subsidy is paid. This would make average payments of 2½ per cent. in 1897, 4½ per cent. in 1889 and 8 per cent. in 1890. Counting the gross revenue for Mexico for 1887 at \$15,000,000, there would fall to the portion of the Mexican Central \$875,000 in 1889 and \$1,200,000 in 1890, and more or less, as the national revenue should increase or diminish. It is further understood that the present outlook points to the borrowing of nearly \$300,000 to meet the July scrip and the first mortgage interest. The scrip interest amounts to about \$191,000, and the coupon on the scaled 4s to \$560,000, on the basis of \$28,000,000 scaled bonds, which is practically the amount to-day. This makes \$751,000 due July 1, and if \$300,000 is borrowed, the company expects to derive from the road \$451,000 to meet this payment. The full report of Vice-President Symon's negotiations with the Mexican government is said to be a voluminous document, written in Spanish, and as soon as it can be translated and printed, will be submitted to the further consideration of the board of directors."

The statement for April and the four months to April 30 is getollow; in Mexican consideration of the board of directors."

The statement for April and the four months to April 30 is as follows, in Mexican currency:

| 1886 | 1885 | 1885 | 1886 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 |

Minneapolis & Pacific.—Contracts for grading the new road are being let as fast as the location is completed and the contractors are instructed to push the work as fast as possible. The road is to extend from Minneapolis, Minn., westward to Glenwood, 120 miles. It is controlled by the Minneapolis people who are building the Minneapolis, Sault Ste. Marie & Atlantic.

Montana Northern.—This company has been organized to build a railroad from the Great Falls of the Missouri in Montana to the international boundary line, near the 110th meridian, where it is crossed by the west fork of Milk River. The design is to connect the Montana Central and a branch from the Canadian Pacific. The capital stock is fixed at \$2,500,000.

Montgomery & Florida,—This company has been organized to take the Montgomery Southern road, which was sold under foreclosure some time ago. It is announced that the new company will change the road from 3-ft. to standard gauge and will extend it southward to Chattahoochee, Fla. The read is now in operation from Montgomery, Ala., southward to Ada, 20 miles. The extension will be built by a corporation known as the Southern Railway Construction & Land Co., which has been organized to take the contract.

Nescopec.—This company has been organized to build a railroad from the Sunbury, Hazleton & Wilkes-Barre road near Rock Glen, Pa., along Nescopec Creek to a junction with the North & West Branch. The organization is controlled by the Pennsylvania Railroad Co. The road will be 12 miles long.

New Brunswick & Prince Edward Island.—The trick is now laid on this road from the junction with the Intercolonial road to Port Elgin on Baie Verte. On the remaining 15 miles, from Port Elgin to Cape Tormentine, the grading is nearly fluished and track laying is in progress. Work has been begun on the deep water wharf at Cape Tormentine.

New York & New England.—The statement for April of the seven months of the fiscal year from Oct. 1 to April O is as follows:

bllows : April September 1885, 1885-86, 1884-85, 1885-86, 1884-85, 1885-86, 1884-85, 1885-86, 1884-85, 1885-86, 1884-85, 1885-86, Net earnings.....\$106,057 \$72,237 \$786,022 \$519,193

For the seven months the gross earnings increased \$352.491, or 19.8 per cent., and the expenses \$85,662, or 6.8 per cent., leaving a gain of \$266,829, or 51.4 per cent. in net

cent., leaving a gain of \$286,829, or 51.4 per cent. in net earnings.

The committee of the Massachusetts Legislature, which has been hearing the application of Cyrus W. Field and others, for permission to submit a claim for damages arising from the sale of the second-mortgage bonds owned by the state, has submitted a singular report, which is apparently intended to sooth everybody's feelings without giving anybody more substantial damages. The report says that no evidence was submitted, and that there is no ground for believing that in the sale the Governor and Council were influenced by any other motive than the desire to protect the best interests of the state. They also state that the motive of Mr. Field and his associates in endeavoring to secure the second-mortgage bonds were misunderstood, and that it does not appear that they intended to foreclose the second-mortgage or to make money in any way at the expense of the other creditors or of the stockholders. Finally the committee reports that no legislation is expedient or necessary, and that the matter be finally dropped.

experient or necessary, and that the matter the many dropped.

In New Haven, Conn., June 8, a hearing was given on the suit brought to determine the right of the company to pay dividends on the new preferred stock. The point to be settled is whether under a strict construction of the Connecticut law the capital of the company is impaired, and whether the surplus now in the treasury can be called net earnings and paid out as a dividend.

ners. The roof is covered with copper green slate. The interior is handsomely finished and furnished, and there is a platform 20 ft. wide on the track side of the edifice, and 40 ft wide at the ends.

Ordway, Bismarck & Northwestern.—Survey, have been begun for this line from Ordway, Dak., northwest to Bismarck. It is reported that work will be begun on the line as soon as it is located.

to Bismarck. It is reported that work will be begun on the line as soon as it is located.

Oregon & Transcontinental Co.—This company has begun suit in the New York Supreme Court against the Northern Pacific Railroad Co., Winslow, Lanier & Co., Drexel, Morgan & Co., and others, to recover \$2,000,000 of the capital stock of the St. Paul & Northern Pacific Co., which, it is claimed, belongs to the plaintiff, but is wrong-fully retained by the defendants. The complaint cites the organization of the St. Paul & Northern Pacific Co., as successor to the old Western Railroad Co., of Minnesota, and the guarantee of its bonds by the plaintiff company, and states that the capital stock was increased from 8,008 to 50,000 shares, and the proceeds of such stock and of the bonds were used in completing and extending the road. It is further charged that the amount expended for such purposes was less by \$2,000.000 than the amount realized from the stock and bonds, but that the stock not used was retained by defendants, who have refused to deliver it to this company.

It has been understood for some time that the opposition to the present management have been soliciting proxies and purchasing stock of this company with a view to ousting the Boston party from the board at the coming election. It appears, however, that they have not been successful in securing a majority, and on June 8 it was aunounced that a compromise had been made by which Mr. Elijah Smith is to be re-elected President and the Boston party will have a majority of the board, but the New Yorkers, represented by Mr. Brayton Ives, will be allowed to name several directors.

Philadelphia & Reading.—The Philadelphia Ledger of June 5 says. "The amouncement was med by

of the board, but the New Yorkers, represented by Mr. Brayton Ives, will be allowed to name several directors.

Philadelphia & Reading.—The Philadelphia Ledger of June 5 says: "The announcement was made by cable from London yesterday that public notice had been given there that the whole issue of Reading general mortgage bonds had been drawn for payment by the sinking fund of that mortgage. By the terms of the Reading general mortgage that company is authorized to increase the ordinary sinking fund of any one year such amount as they may see fit. Under this provision, President Gowen, of the company, gave notice to the Fidelity Trust Co., trustee of the general mortgage, on April 14 last, of the purpose of the company to pay to the trustee by way of sinking fund the whole amount of the outstanding bonds, being \$824,686,000. Under this notice the trustee directed, in accordance with the terms of the mortgage, that adrawing of the whole amount of the outstanding bomds should be made by D. C. Bruce-Gardyne, Agent of the Reading Company in London. This, as we are informed, was done on May 31. The general mortgage requires that the company shell pay to the trustee the amount of the sinking fund on or before June 1. We are further informed that Mr. Gardyne, having made the drawing of the whole amount of outstanding general mortgage bonds, subsequently put an advertisement of the drawing in the London newspapers; but unfortunately the company did not pay any money to the trustee on account of the sinking fund on or before June 1 (or since), and the Fidelity Trust Co., being mformed of the fact that such advertisement had been published in London, cabled to Mr. Gardyne, telling him that the money had not been paid and instructing him to withdraw the advertisement."

ment."

Portland & Ogdensburg.—The time allowed for redemption having expired, and this road having passed under the decree of foreclosure into the possession of the trustees for the bondholders, the bondholders met in Portland, Me., June S, and organized a new company under the old name. It was voted that capital stock of the new company should be issued to an amount equal to the bonds and outstanding coupons, and the exchange of bonds for stock in the new company was provided for. The directors were instructed to take the necessary action to secure the conveyance of the road from the trustees, in order that the new company may secure a proper title. Formal notice was received from the city of Portland to the effect that it would, for the purpose of organization, waive for the present its claim for interest on its bonds, reserving its right to such interest for future adjudication. The meeting then adjourned until September next.

Bochester & Pittshurgh The Pennsylvania Su-

Rochester & Pittsburgh.—The Pennsylvania Surence Court has dismissed the appeal from the decision of the Common Pleas enjoining the transfer of this road in leannsylvania under the foreclosure and appointing a separate sectiver for the road in Pennsylvania. The Court affirms the decision of the lower court to the effect that so far as the onsolidated company undertook to created debts or to deal rith property in the state of Pennsylvania, it must be rearded as a Pennsylvania corporation, and must comply with the laws of that state.

Rutherford.—In the suit of John L. McDowell against the Ruthefford Railroad Co. and the Massachusetts & Southern Construction Co., to restrain the Commissioners of Rutherford County, N. C., from issuing \$100,000 in bonds voted by the county, the court has dissolved the injunction. The plaintiff has filed notice of appeal to the Supreme Court.

St. Louis, Arkansas & Texas.—This company gives official notice that it has secured control of and is now operating the Texas & St. Louis road. The work of changing the gauge from 3 ft. to standard has been begun, and it is expected that the entire system will be changed to standard gauge by Sept. 1.

San Antonio & Aransas Pass.—At a meeting held in San Antonio Tex., June 2, the stockholders voted to authorize an increase of the capital stock from \$10,000,000 to \$20,000,000, and also to authorize an issue of \$10,000,000 in bonds for the purpose of building the proposed extension from San Antonio northwest. The company has made an offer to a number of the towns and countries along the projected line, offering to build the road if they will take bonds to the amount of \$4,000 per mile.

Sarasota Bay.—This company has been organized to build a railroad from Sarasota Bay, Fla., to a point on the South Florida road. The distance is about 50 miles.

Sebasticook & Moosehead Lake,—This company has local subscriptions enough to secure the construction of its road from Pittsfield, Me., on the Maine Central, up the Sebasticook Valley, to Hartland, a distance of about 18

Sinnemahoning Valley.—This road is now completed to Costello, Pa., 4 miles westward from the late terminus at Austin, and 12 miles from the junction with the Buffalo, New York & Philadelphia road. The main line will not be extended further at present, but some 5 miles of short branches will be built this summer.

Southern Change of Gauge.—In the list of southern roads, the gauge of which has been changed, which was given last week, the Norfolk & Western was dropped out by

a printer's mistake, which is to be regretted, as this road is far too important a line to be overlooked, or to be classed among the minor lines. This road made one of the best of the many good records shown on the days of change, the entire line of 510 miles having been changed in eight hours on June 1, so that trains started out on the new gauge at 2 p. m. on that day, this promptness showing that the preparations must have been thoroughly made, and the work done without delay or mishap of any kind. The change of gauge is of especial importance to this road, which has a large through business and has been on the border line between the 5 ft. and the standard gauges.

The last line of any length to be changed was the section of the North Carolina Division of the Richmond & Danville from Company Shops to Goldsboro, N. C., which was changed on June 8. The change on this line was postponed chiefly that it might be used as a store-line for cars awaiting change.

Southern Maryland.—Deeds have been recorded trans-

Southern Maryland.—Deeds have been recorded transering this road to the Washington & Potomac Co., organ 25d by the bondholders who bought the road at foreclosure

Southern Pacific Co.—The statement for the Atlanti system of this company for the month of April is as follows

-(11088 E	FIRE PIECE	T4 C1 OW1	mingo.
1886.	1885.	1886.	1885.
Morgan's La. & Tex \$362,545	\$221,805	\$120.757	\$125,109
Louisiana Western 63,166	56,050	48,798	34,290
Tex & N. Orleans 92,575	79,344	36,523	36,242
Gal. Hav. & San Ant 261,152	233,473	28,674	107,505
N. Y., Tex. & Mex 11,958		*2,580	**** ***
Gulf, W. Tex. & P 3,751	4,971	*742	*730
Total8795,147	\$695,643	4931 430	\$302,126
1000,147	\$000,010	\$401,400	₩ 0000.120
4 D 0 11			

The effect of the low rates on through business is shown he increase in gross and the decrease in net earnings in most as marked a way as in the March statement.

Tacoma Sonthern.—This company has been incorporated to build a railroad from Tacoma, Wash. Ter., southwest, through a heavily timbered country, to the coal fields in the foothills of the Cascade Mountains. The company is controlled by the Northern Pacific, and the road will be a branch of that line.

Texas & Pacific.—The committee lately appointed by he stockholders is at work in connection with a committee representing the Philadelphia interest in the road, preparing a new plan of reorganization, which will shortly be made

a new plan of reorganization, which will shortly be made public.

In the argument before the United States Circuit Court regarding the proposed issue of receivers' certificates for the purpose of putting the road in good condition, the evidence submitted showed that about \$300,000 were required for the Eastern Division, and that this amount could be repaid from the net earnings in the course of a few months. For the New Orleans and the Rio Grande divisions a large amount would be needed, and it was conceded that it would be necessary to make these certificates a lieu upon the property in advance of that of the bondholders. The repairs on the New Orleans Division could not be begun before July 1. Counsel for the trustees argued that no action should be taken until an opportunity had been given to the stockholders to advance the money needed, or until it had been accretained what were the wishes of the majority of the bondholders. The C curt acquiesced apparently in this view and made no order in the matter, postponing its consideration for the present. It is reported that the bondholders will not object to an issue of certificates to a limited amount, the expenditures to be strictly confined to putting the road in condition for safe operation.

Toledo, Cincinnati & St. Louis.—A new suit has been entered in the United States Circuit Court at Indianapolis by the Western Construction Co. The sunt is brought to recover \$1,800,000 of the stock of the Frankfort & State Line Co., whose road afterward became a part of this line. The stock was held by S. H. Kneeland and A. A. Thomas in trust and the Western Construction Co. claims to be the owner.

Toledo, Peoria & Western.—In the United States Circuit Court in Chicago, June 1, application was made for a final decree of foreclosure of the first mortgage for \$4.500,-000, and the application was to be considered this week. A cross-bill is pending, filed by the holders of the second or income mortgage, who desire to make some arrangements to retain their interest in the property.

Union Pacific.-The statement for April and the four

1	months to April 30 is as fol	lows:		
3	A1	pril	Four	months
4	1886.	1885	1886.	1885
i	Earnings \$2,113,440	\$1,987,191	\$7,130,818	
•	Expenses 1,360,731	1,333,302	5,145,962	4,959,494

Not earnings ... \$752,709 \$653,889 \$1,984.849 \$2,242,113

For the four months the gross earnings decreased \$70,789, or 0.9 per cent., and the expenses increased \$186,475, or 3.8 per cent, the result being a decrease of \$257,264, or 11.5

per cent., in net earnings.

Land sales for May were 55,934 acres for \$158,075. The

Ì	total land sales for the five months to May	31 were	
-	Union Division	Acres. 146,038 87.739	Amount. \$177,632 484,088
1	Total	233,777	\$661,720

As compared with last year the total sales show a decrease of 52 per cent. in acreage and of 53 per cent in amount.

Track has been laid on the branch of this road from St. Paul, Neb., northwest to Loup City, a distance of 40 miles. Trains are to be put on this branch some time during the coming week.

Coming week.

Vicksburg & Meridian.—Receiver Bond has filed a formal protest against the action of the Mississippi Railroad Commissioners in fixing the passenger traffic on that road at 3 cents per mile. In the protest he states that the road is bankrupt and that the passenger business is conducted at a loss. The commissioners, after considering the protest, declined to withdraw their order. The United States Circuit Court, by which Mr. Bond was appointed receiver, has instructed him to pay the order of the Commission and to reduce the passenger fares for three months and then to make a report to the Court of the resuit, when the court will decide what further action should be taken.

decide what further action should be taken.

Wabash, St. Louis & Pacific.—The circular issued by the Purchasing Committee states that the total debt of this road as now operated by the Receivers, including overdue interest and car trusts, is \$44,956,500, and the interest on that amount at the present rate is \$3,093,000. The whole amount earned last year under the management of the Receivers and applicable to interest was \$1,346,294. The floating debt, including receivers certificates and the foreclosure expenses, amounts now to about \$4,000,000, the receivers' certificates being about \$1,400,000. This floating debt includes none of the notes originally given for the claims of Messrs. Gould, Humphreys and others, which notes were given up and cancelled some time ago. The payment of this floating debt and

of the car-trust debt, \$3,196,000, is an absolute necessity, and these claims must be arranged for whether the present reorganization plan is carried through or not. The proposition now submitted for the committee for the consideration of the bondholders is as follows:

"1. A reduction of interest to 5 per cent. per annum on all mortgages east of the Mississippi River, amounting to \$22,—519,675.

mortgages east of the Mississippi River, amounting to \$22,—519.675.

"2. Overdue coupons on the above for 18 months to befunded into bends to be designated Coupon Bonds, in three-series. Ccupons of the first mortgages and funded debt 7s. to be funded in first series; of second mortgages and funded debt 6s, in second series, and of consolidated and 7s of 79. in third series. Interest on the 7 per cent, scrip to be funded to Feb. 1, 1886, and on the 6 per cent, scrip to May 1, 1886. These coupon bonds to bear interest at 5 per cent, payables semi-annually from Aug. 1, 1886, for first series, Nov. 1, 1886, rosecond series, and Jan. 1, 1887, for third series, and to take rank in payment after the mortgages, according to priority of those from which they may be detached. Thus the coupon bonds of the first series will be entitled to interest after payment of the coupons of the first mortgages, the second series after payment of interest on the second mortgages and the third after dotted and 7s of 1879.

"3. The bonds of the Chicago Division to fund coupons upto and including Jan. 1, 1887, into coupon bonds of third series."

"4. The principal of all mortgages ranged begins to be account to be account of a light of all mortgages are appeal to be account of the light of the light

"3. The bonds of the Chicago Division to fund coupons up to and including Jan. 1, 1887, into coupon bonds of third series.

"4. The principal of all mortgages named herein to be extended 40 years from the date of the first coupon maturing at the reduced rate, and to receive new sheets of coupons from the reorganized company, payable semi-annually, at the rate of 5 per cent. Per annum.

"5. All the mortgages specified herein, except the first and second mortgages, and the first and second series of coupon bonds, to waive foreclosure rights until after three consecutive years of default.

"If mutually satisfactory terms can be arranged with the Detroit and the Omaha divisions, it may be thought desirable to retain them in the Wabash system. This matter will be duly considered by the Committee."

Should these propositions be accepted by the bondholders, the interest obligations of the new company for 1887 would be \$2,158,009 and for the following year \$2,270,509. To this must be added the interest on the car trusts, if an arrangement can be made with the trustees, and also interest on the Detroit & Omaha Division bonds, should those lines be retained. The charges under these heads would be about \$400,000, bringing the total interest requirements up to about \$2,300,000. On the basis of the earnings of the first four months of the current year, the committee estimates that the net earnings for 1886 will be about \$2,390,000, or something over \$210,000 less than the requirements. The committee represents that the offer now made to the holders of the divisional first mortgages will give them a better return than they can hope for should the property be broken up and sold under separate foreclosures of those mortgages.

Washington & Potomac.—This company was organ-

Washington & Potomac.—This company was organized some time ago by the bondholders who bought the Southern Maryland road at forelosure sale. The transfer of the road was delayed by a suit brought to set aside the foreclosure, but it has been finally completed, and the necessary deeds executed and placed on record. The company will at once begin work on the extension of the road from its present terminus to Esperanza, on the Patuxent River, and thence to Point Lookout. It is now in operation from Brandywine, Md., on the Baltimore & Potomac road, to Mechanicsville, 20 miles.

Western Union Telegraph.—The statement for the narter enting June 30 is as follows, June wholly and May

Not earnings for quarter	\$1,000,000 143,615
BalanceSurplus from previous quarter	\$856,385 3,509,568
Total	

Total. \$4,365,95't

The statement says: "The falling off from the estimate in the net results of the last quarter is due principally to the judgments against the Western Union and the Gold & Stock companies, amounting with interest and costs to \$193,933, for taxes levied by the state of New York for 1881 on the entire capital stock, represented by property in 38 states, 10 territories, the Dominion of Canada, Great Britain, the island of Cuba, and the high seas. These taxes were paid a few days before the last estimate was made, in the confident belief that if paid we would be able to obtain an act for their retund. They were not, therefore, taken into the estimate. "As no other corporation of any magnitude was so taxed, except a single railroad corporation, which has had the tax on capital stock represented by property without the state refunded; and as the officials of the state and the Legislature have recognized the injustice of the act by having it amended applying to 1882, 1883, 1884 and thereafter, it cannot be doubted that justice will finally be awarded and this extortionate taxation refunded.

"The revenues from current commercial business and news service continue to show a handsome improvement, the increase at test offices since Jan. 1 being \$110,000 in excess of the corresponding five months of the previous year, or an average of about \$5,000 per week. But this increase is more than counterbalanced by the reduced revenues from the cable and commercial news service. The low rates of tolls prevailing between commercial centres requires the handling of a largely increased volume of business to maintain the same revenues, involving increased force to handle this class of business, much of which is done without profit.

"The entire surplus, together with the sum represented by the last dividend in certificates of indebtedness, has gone into the plant, and is represented by capitalization either in stock or bonds and given to the stockholders; but, under all the circumstances at the present time, it is r

Wheeling & Lake Brie.—A suit has been brought by the firm of N. Huckins & Co., contractors, to recover \$26,000 alleged to be due them for construction of a portion of this road. The company being insolvent and the road having been sold under foreclosure, the suit is to be prosecuted against the stockholders to determine their liability under the Ohio law. A number of the original stockholders met in Massillon, O., June 1, and decided to employ counsel and contest the suit, agreeing to pay assessments to meet the necessary expenses.

wilmington & Weldon.—Work is progressing actively on the new Wilson Cut-off of this road, and track is now laid from the junction with the main line near Wilson, N. C., southwest about 30 miles, to a point 5 miles beyond Smith-field. The Neuse River is crossed at Smithfield on a temporary bridge, which will be replaced by an iron bridge as soon as the piers are completed. Grading is well advanced from the end of the track northwest to the crossing of the Cape Fear River near Fayetteville, a distance of about 40 miles, From Fayetteville the track has been laid northward 2 miles,

to the Cape Fear crossing, in order to facilitate the work on the bridge over that river.

Wisconsin Central.—A dispatch from Springfield, Ill., says: "A mortgage of the terminal property of the Chicago & Great Western Railroad Co. in the city of Chicago for the amount of \$8,000,000 has been recorded at the office of the Secretary of State to secure an equal amount of 5 per cent. bonds. The trustees for the bondholders are John A. Stewart, of New York, and Edwin H. Abbott, of Milwankee."

wankee."
The Chicago & Great Western is the organization under which the Wisconsin Central is building its line into Chicago and its stations in that city.

wisconsin, Iowa & Nebraska.—This road, commonly known as the Diagonal Line, has been sold to, or rather consolidated with the Chicago, St. Paul & Kansas City Co., a corporation lately organized to build a railroad from Dubuque, Ia., to Kansas City. The road extends from Cedar Falls, Ia., to Berwick, 110 miles, with a branch 9 miles long to Waterloo. The principal interest is owned by Mr. R. T. Wilson, of New York. It is said that the consolidated company will begin work at once on an extension of the road from Waterloo to Dubuque, and also on an extension westward to Kansas City.

ANNUAL REPORTS.

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Chi ago & Northwestern.

This company, whose fiscal year does not close until May 31, will not issue its full annual report for some time yet. The following approximate statement, the May figures being estimated, was made at the annual meeting in Chicago last

Week:					
Expenses	1885-86, \$24,300 000 13,900,000	1884-85, \$23,502,056 13,793,907	Ind I.	\$797 944 106,093	Pc. 34 08
Net earnings Interest and rentals.		\$9,708,149 5,151,101	I. I.	\$601,851 548,890	7 1 10.6
Surplus	\$4,700,000 3,444,500	\$4.557,048 3,981,349	I. D.	\$142,952 536,849	3.1 13.5
Rajanga	\$1 255 500	9575 800	T	8679 801	1181

Balance \$1,25,500 \$575,699 I. \$679,801 18 i Comparisons are male with the full report for 1884-85. The receipts from the Land Department are not included in either year. The dividends paid last year were 7 per cent. on preferred and 6 per cent. on common stock, against 8 and 7 per cent. in the previous year.

Chesapeake & Delaware Canal.

his company owns the deep water canal connecting the elaware River with Chesapeake Bay. The 67th annual re-ort, for the year ending May 31 last, is as follows:

"The revenue for the year amounted to:	
Tolls	\$204,174
Other sources	6,720
Total	

Nashua & Lowell.

Nashua & Lowell.

This company owns a line from Nashua, N. H., to Lowell, Mass., 12½ miles. The following is the report for the year ending March 31 as presented by the President: "During the past financial year the suit of the Boston & Lowell Railroad Co. against this corporation, which was pending in court a year ago, has been finally decided in favor of this company. The more important suit of this company against the Boston & Lowell Co. and others was heard in December last in the United States Circuit Court for the District of Massachusetts, and decided adversely to this company. An appeal was taken from this decision, by which the case has been removed to the Supreme Court of the United States. Two dividends of 3½ per cent. each have been made the past year out of the rental receipts, and the excess of rental for the year, amounting to \$9,000, has been used in paying the expenses and in reducing the floating debt to the extent of \$4,000. The amount of the floating debt now remaining is only \$11,-000, and your directors understand that Mr. Chas. E. A. Bartlett, one of the defendants in the suit above mentioned, now has in his hands a larger amount of cash funds belonging to you, although the Court in its decision of this suit seems either have overlooked this conceded fact or to have determined the contrary. The directors submit herewith a balance sheet taken from the books April 1, 1886, and have in this charged off as worthless an old item of \$7,500, thereby reducing former debit balances to that extent. After this change the surplus or reserved income account appears to be \$116,887; this sum being the aggregate amount or accumulation of past net income in excess of dividends, showing the property of the company to represent an expenditure or investment equal to that amount over and above the amount of the capital stock"

Marquette, Houghton & Ontonagon.

This company owns a line from Marquette, Mich, to Houghton, 94.94 miles, with 38.92 miles of branches. It also leases (and practically owns) the Marquette & Western, a parallel line from Marquette to Ishpeming, 17.03 miles, making a total of 150.99 miles. There are 51.73 miles of second track and sidings. The report is for the year ending Feb. 28. The Marquette & Western road, which was built as a competing line, was acquired about the beginning of the year. The stock is \$2,798,100 common and \$2,259,000 preferred. The funded debt is \$4,616,700, an increase of \$1,450,000 during the year, chiefly for the purchase of the Marquette & Western road. The company has a land grant of about 80,000 acres.

The earnings for the year w	ere as follo	WS:		
Freight 1885-86. Freight 3703,832 Passengers 106,453 Mail and express 10,282 Miscellaneous 13,576	1884-85, \$.97,800 103,311 9,184 8,903	In I. I. I. I.		P. c. 0.9 3.0 12.2 52.5
7 otal	\$819 198 488,908		\$14,945 24,453	1.8 5.0
Net rarnings \$369,688 G oss earn. per mile 5,521 Net 2,451 Per cent. of exps 55.7	\$330,290 6,120 2,467 59.7	I. D. D. D.		11 9 9.8 0.6
The increased earnings resultion of the iron trade, the				

business of the road.

The result of the year was as follows:

1885-86. 1884-85. Increase. P.c.
Passengers carried. 144.738 129,604 15,134 11.6
Tons freight carried 1,040,709 870,155 170,554 19.5
Of the total tonnage last year, ores formed 85.8 per cent., lumber and forest products 4.4 and coal 4.1 per cent., these three items together constituting 94.8 per cent. of the freight moved.

three items together constituting 94.3 per cent. of the freight moved.

The report says: "During the year considerable repairs have been made on the docks; all the cars have been repaired and are in good condition; the yard at Marquette has been enlarged, and the tracks have been arranged more economically; at Ishpeming a connection has been made between the Marquette & Western Railroad Co. and our main line, by which the latter is relieved of a portion of its traffic; the road-bed has also been improved. Among the more pressing needs in the immediate future are new steel, to replace the old steel on the docks and in the track, where worn, between Marquette and Ishpeming, and the iron between Champion and Michigamme; repairs on, and, in some cases, renewals of, trestles between Michigamme and L'Anse; new roofs on the shops and repairs on section houses. On the Houghton & L'Anse Division much trouble has been caused by high water. It will be necessary, probably, to raise a portion of the track in Sturgeon Swamp, and to cross the Little Carp River at a more favorable place."

Manchester & Lawrence.

This company owns a line from Manchester, N. H., to the Massachusetts line, 22.3 miles, and it leases the Methuen Branch of the Boston & Maine, from the state line to Lawrence, Mass., 3.7 miles, making 26 miles worked. The report is for the year ending March 31.

The company has \$1,000,000 stock and no funded or floating debt.

ing debt.	The traffic for the year was as follows:
The earnings for the year were as follows: 1885-86. 1884-85. Inc. or Dec. P.c. Freight. \$35,036 \$40,280 D. \$5,244 13 1 Passengers. 63,963 69,599 D. 5,636 81 Mail, etc. 14,220 15,153 D. 933 62. Concord R. R. jointearnings. 64,583 58,055 I. 6,528 11.2	1885-86.
Total	Ton-miles
Net earnings	Per passenger-mile 2.20 cts. 2.52 cts. D. 0.32 ct. 12.7 Per tou-mile 3.80 " 3.75 " I. 0.05 " 1.3
Taxes are included in expenses. A large part of the busi, ness is done under a contract with the Concord Railroad Co The income account for the year is as follows:	more last summer at low rates. During the year the main line was extended from Gettysburg to Ortanna, 8 miles. There were 353 tons of new steel
Net earnings, as above	rails laid. The work of widening and ditching the cuts, widening the embankments and filling trestles has been completed, and the road put in excellent condition. The bridges and masonry are also all in good repair.
Balance, surplus for the year	The question of extending the road from Ortanna to Fair- field is now under consideration. The decision depends some- what upon the inducements offered by the people of Fair- field.
The same of the sa	3000.005

ties have been replaced, and 1,376 ft. of side track have been laid. The road-bed, track, bridges and buildings are all in good repair.

Northern (New Hampshire).

This company owns a line from Concord, N. H., northwest to White River Junction, Vt., 69.5 miles, with a branch from Franklin, N. H., to Bristol, 13.5 miles, making 83 miles in all. The report is for the year ending March 81. The road is leased to the Boston & Lowell Co. and its operations are given in the report of that company, the directors' statement referring only to the financial condition.

The company has \$5,068,400 stock and no funded debt. The income account is as follows:

The income account is as follows.	
Rental received from lessee	\$153,420 49,152
Total receipts	\$202,572 179,838
Surplus for the year	132,513

Total balance, March 31, 1886.....

Hanover Junction, Hanover & Gettysburg.

This company owns a line from Hanover Junction, Pa., through Hanover and Gettysburg to Ortanna, 38 miles. It leases the Bachman Valley road, of Maryland, from the state line to Ebbvale, 5 miles. It controls and works the Bachman Valley road, of Pennsylvania, Valley Junction to the state line, 9 miles; the Berlin Branch, Red Hill, Pa., to East Berlin, 7 miles; the Baltimore & Hanover, Emory Grove, Md., to Bachman Valley Junction, 20.2 miles. This is a total of 79.2 miles. The report is for the year ending March 31.

total of 79.2 miles. The report is for the year ending March 31.

During the year the line owned was extended from Gettysburg to Ortanna, 8 miles, on an old graded road-bed.

The equipment consists of 11 locomotives; 16 passenger and 3 baggage, mail and express cars; 50 box, 17 stock, 26 gondola, 28 lime and gravel and 2 caboose cars; 1 derrick car

The general accou	int,	COL	ade	ns	ed,	is a	is f	ollov	7S:	
The general accou										\$116,850
Bonds										250,000
Accounts and balanc										
Profit and loss				***		***				326,807
Total										8708 282
Read, equipment, et	C							9	566.738	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Stocks owned									107,650	
Materials and fuel									9.919	
Cash and bills receive	able								23,975	

The stocks owned are of the leased and controlled lines. The funded debt was increased \$36,500 during the year. The cost of road and equipment was increased \$114,088 in all. The earnings for the year were as follows:

Freight. 1885-86.
Passengers. 22,862
Mail, etc. 12,035
Working controlled lines. 32,750

Total. 1884-85 Inc. or Dec. P. \$26,638 D. \$1,737 6 21,254 I. 1,608 7 13,606 D. 1,571 11 28,490 I. 4,260 1 Total....\$92,548 \$89,988 L \$2,560 Expenses\$65,827 67,522 D 1,695 2.8 Net earnings \$26,721 tross earn, per mile 1,231 et 355 \$22,466 I. \$4,255 1,264 D. 33 316 I. 39 75.0 D. 3.9 er cent. of exps..... 71.1 Expenses include taxes and all renewals and impr

Expenses include taxes and all renewals and improvements, the only charges to construction being for new road built. The result of the year was as follows: \$26,721 \text{ Interest on bonds}. \$26,721 \text{ Interest on bonds}. \$17,732 \text{ Interest on bonds}. \$22,479 \text{ Interest on bonds}. \$22,479 \text{ Interest on bonds}. \$17,732 \text{ Interest on bonds}.

...\$ '39,75 Balance, March 31, 1885...

	1885-86.	1884-85.	Inc.	or Dec.	P. c
Locomotive miles	185,432	164,635	I.	20.797	12.6
Passenger car miles	314,884	260 933	I.	53,951	20 7
Freight car miles	199,500 .	242,566	D.	43,057	17.
Passengers carrie1	61,441	54,005	I.	7,436	13.8
Passenger-miles	1,042,507	830,575	I.	211,932	25.
Tons freight carried	76,183	78,204	D.	21	0 3
Ton-miles	658,913	710,311	D.	51,398	7.
Average rate:					10
Per passenger-mile	2.20 cts.	2.52 cts.	D.	0.32 ct.	12.
Per ton-mile	3.80 "	3.75 "	1.	0.05 "	1.3